Green Museums Focus On Human Responses

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Arboreta and botanical gardens are museums in the full sense of the word (Lewis, 1981). They acquire, document, catalogue, curate and display their collections. However, these institutions differ from art or science museums in that their collections are living and require environmental conditions which permit continued growth and development. For the most part, their collections must be displayed outdoors, although at some institutions greenhouses create artificial environments for exotic plant specimens. Since living collections may survive for many years, a continuous record of the development and progress of each accession over the years is an important part of its documentation.

Plants are displayed in groupings (our galleries) based on inherent characteristics, botanically (in which representatives of a botanical family are assembled), geographically (showing plants which originated in a particular region or country), or in gardens (where plants are arranged to create a particular aesthetic effect or portray a theme).

These institutions convey information to visitors about the plants through educational classes, interpretive signage, and resources such as libraries and herbaria. (A herbarium is a reference collection of botanically identified pressed and dried plant specimens, mounted on paper sheets which are arranged in cabinets for ready reference and protection. However, at times there has seemed to be a conflict between the interests of the professional horticultural or botanical staff and the interests of visitors. Visitors to arboreta and botanical gardens come not only to learn about the plants but also to experience the natural ambience created by the display of living plantings. Visitors have often been seen as necessary but bothersome. They walk where they should not, remove identifying labels, and come just to enjoy being out in a green setting rather than to be educated about plants. To rigid botanists and horticulturists the visitor could be seen as a liability, threatening the cherished collections.

In recent years we have begun to realize that collections also provide a setting for visitor experiences. Our plants and landscape create an ambience not readily available in the busy urban world. Botanical gardens and arboreta are now trying to understand the response of visitors to the green settings they offer. What attracts people to come? What is their experience while

on the grounds? What benefits are derived from visiting "green museums"? Answering such questions requires the expertise of professionals who are concerned about people and how they perceive and respond to the world around them. This is the domain of environmental psychologists and geographers who investigate how people are affected by experiences with nature, whether in city or country. Botanical gardens and arboreta are now seeking their guidance in studying the kinds of responses visitors have to collections landscapes.

Rachel and Stephen Kaplan, psychologists at the University of Michigan (Kaplan & Kaplan, 1989), and Roger Ulrich, environmental psychologist at Texas A&M (Ulrich & Parsons, 1992), have studied how nature settings are perceived and their effects on the viewer. Their work begins with an examination of preference—the kinds of places people like or dislike. To test for preference, participants are shown a series of slides depicting a variety of scenes and are asked to rate on a scale of one to five how well they like them.

At first glance, preference does not seem to be of great importance. Anyone should be able to figure out the places they like. But in preference tests the participants must respond in twenty seconds, not enough time to think about what they see. These tests tap a kind of knowing characterized by spontaneous intuitive feelings that occur before one can even think about what he/she sees. It is a deeper way of knowing, not directed by our cognitive mind, but operating on its own. These are emotional responses that poets try to put into words. Wordsworth expressed this unthought, sudden way of knowing when he said, "My heart leaps up when I behold a rainbow in the sky." First his heart leapt up, then he stopped to think about what caused his heart to leap up—the rainbow.

Perception tests have been repeated in many parts of the world, across a wide range of cultural and socioeconomic groups. When the results of these tests were analyzed, researchers saw patterns emerging, as preferences were expressed across a broad spectrum of social, economic and ethnic levels. It appears that preference is not a haphazard idiosyncratic decision, but seems to reflect a commonality in people. The researchers concluded that they were sampling something inherent in our species, shared by all humans. Landscape preference is an expression of something within us of which we really are not aware.

What kinds of settings are preferred? When slides include both urban scenes with no vegetation and scenes which are predominantly of vegetation, preference is strong for the settings with vegetation. On slides of urban settings, the slightest presence of vegetation among the buildings will produce a higher preference rating. At a gut level, people have a strong preference for scenes with green nature.

The studies have shown that some specific configurations of landscape may be more highly preferred than others. A woodland setting in which the trees are spaced apart is preferred over a woodland that is thick with

underbrush. Given two paths, one going straight ahead and the other curving out of sight behind a rock or group of trees, the curving path is selected. Especially preferred is a setting at the edge of the forest where, hidden among the trees, one might be able to see what is approaching. People prefer a view that has a feeling of mystery where one could not see everything at first glance—a setting where part of the view might be obscured by vegetation.

Researchers have also found that a view of green nature is indeed restorative. Where patients have a view of trees from their hospital window, they recover more quickly and require fewer pain killers than patients receiving the same treatment, but whose window faces a brick wall (Ulrich, 1984). When students, stressed after taking exams, viewed slides of green nature their stress level was reduced and conversely, when a paired group of students viewed urban scenes they became even more stressed (Ulrich, Simmons, Losito, Fioroto, Miles, & Zelson, 1991). Prisoners who can see green nature from their windows report on sick call less frequently than those whose view is of other buildings in the prison complex (West, 1986). Green settings provide restoration from stress. Blood pressure and heart rate are reduced after a visit to a botanical garden (Owen, In press). Recovery from stress is enhanced by views of green nature (Ulrich & Simons, 1986).

These studies provide an insight to the human values represented in landscape settings. At the Morton Arboretum—a 1500 acre research and education institution which is open to the public in Lisle, Illinois, with a landscape of naturalistic plantings and wooded areas—we were interested in how the visitors felt after walking on the grounds. The natural aspect of the Arboretum's landscape is characterized by clumps of trees separated by grassy openings which flow through the landscape. As one moves about, the landscape seems to be in motion with a constantly changing view. The visitor's motion is translated into the continuous movement of the landscape itself.

When travelling on foot or by car, vistas open, permitting a long view of distant fields, trees, and lakes; then the view becomes obscured while yet another vista opens onto a different setting. The eye is stimulated by this interplay of masses and voids which permits enticing glimpses, but never the whole story at one glance. Such a landscape provides endless interest, presenting a continuously changing display of preferred settings.

The Arboretum appeals to visitors wishing to escape from the push of metropolitan areas. They say, "When I drive through the gates it is like entering another world." They are able to slow down and listen to the quiet voices of nature whose message is one of tranquility and serenity. Over the years, visitors' casual remarks have given insights into the meanings found in Arboretum landscapes.

Herbert Schroeder, environmental psychologist with the U.S. Forest Service, studied responses to the arboretum landscape (Schroeder, 1991). The comments he recorded reveal the depth of experience of a visit. For

some people an arboretum reflected religious values ("Being in the woods is a place where your spirit can fly free without interruption, bringing you closer to God"). The landscapes create a sense of order, peace, and well-being ("A feeling of quiet, peace, and order arises within me"). Escape from daily routine was another value which was expressed ("... a place of beauty, peace, quiet excitement and refuge from the noise, turmoil, pollution and unpleasantness of traffic and crowded work and living conditions." "A forest represents to me a cool, calm, place to regain composure").

Mystery and magic are also expressed by visitors ("There is at once strength and form in these native trees that creates a potent force and magic in the area." "When the sugar maples are a golden glow, it is magical").

Why do Arboretum landscapes evoke such deep feelings? Why do we prefer the open forest, the path curving out of sight, the partially obstructed view? How might such preferences have originated and what might they signify about people and their relationship to natural settings?

We now think that the relationships can be traced back to our beginnings as a species. From an evolutionary perspective, landscape preference may be seen as a remnant of early lessons on how to survive. Our hunter-gatherer ancestors had a tough job and were constantly on the move. Life was a long continuing camping trip, and to be successful, humans had to become skilled in identifying and selecting habitats that presented opportunities for survival, protection from danger, shelter from weather and marauding animals, and nearby sources of food and water. Without a Mobil Guide to rate the places to stay, primitive humans had to become adept at analyzing a given habitat for its life supporting qualities. Only the most skilled survived to continue the species.

For our hunter-gatherer predecessors analyzing a habitat could have been an intense, time consuming activity. Primitive humans had to be alert at all times to detect unexpected dangers. If they became totally absorbed in studying the potential of a setting, they could have easily been surprised by unnoticed dangers which crawled, roamed, or slithered in the surrounding environment. They could not afford to be so involved in analyzing the site that a mammoth might sneak up on them. However, if identifying a habitat were a more automatic response, not requiring conscious effort, then their mental faculties could remain alert to encounter the unexpected. It would be evolutionarily advantageous if perception of favorable settings were intuitive, not requiring conscious thought, thus allowing them to address other threats that might appear.

The ability to intuitively recognize favorable habitats would indeed have a strong survival value. And, if in addition, the individual gained a sense of accomplishment and pleasure in successful habitat selection, the positive feelings would further strengthen the selection of favorable habitats. Many of those ancient feelings were incorporated into our genetic memory and are the basis for our intuitive feelings of preference about the landscapes we see today. We still prefer settings which symbolically present survival clues.

The edge of woods where one can see out but not be seen is a safe place. A path curving out of sight, indicating more to be learned, appeals to individuals with intellectual curiosity. In an open forest one can see ahead and be able to escape more quickly than from a forest thick with undergrowth. A partially obscured view implies protection for the viewer behind the obstruction. It also piques interest, since there is more to learn. Enjoying preferred landscapes had its origin in learning to select habitats that favored continued life and survival.

Visitors walking in our gardens bring with them the shadows of those ancient survival mechanisms. Our landscapes satisfy those longings in our psyche. The humanist view points to the unrealized potential of our gardens as settings for restorative experiences. We can only guess at the total benefit for all who visit. We need to understand plantings as more than botanical or horticultural but in terms of the experiences they evoke in visitors.

This view of our plantings brings increased significance to the role of arboreta and botanic gardens. More than botanical and horticultural, they are also humanist, communicating with our inner selves. The ability of our landscapes to provide peacefulness and restoration leads to a more complete appreciation of the value of our gardens for their visitors.

For staff members who are strongly oriented to horticulture and botany, the humanist view adds another level of meaning to their work. It helps the staff to see their institution and its visitors in a larger context, where visitors' personal experiences are valued equally with the educational and scientific aspects. Collections, plantings, and landscapes, when experienced by visitors, become windows into a place of peace and tranquility which requires no guidance from maps, directional signs, or interpretive labels.

In horticulture, this viewpoint is classified either as "people/plant interactions" or "human issues in horticulture." Evidence of this new focus is to be found in committees established by horticultural organizations. The American Association of Botanical Gardens and Arboreta created a committee on Human Issues in Horticulture. A similar group has been established by the American Society for Horticultural Science, which devoted an entire issue of its publication *HortTechnology* (2/2, 1992), to "Human Issues in Horticulture." The People-Plant Council (Relf, 1992) encourages research and acts as a liaison between groups within horticulture and researchers from other disciplines interested in studying human responses to green landscapes.

In recent years, an ongoing series of multidisciplinary symposia have examined the relationships between people and plants. Proceedings of the first symposium, *The Role of Horticulture in Human Well Being and Social Development*, held in 1990, have been published by Timer Press (Relf, 1992). The next symposium, *The Healing Dimensions of People-Plant Relations*, will be held March 24, 1994 at The University of California, Davis. The International Society for Horticultural Science will present a

symposium, *Horticulture in Human Life, Culture and Environment*, at its 1994 International Horticultural Congress in Kyoto, Japan.

For green museums, understanding the psychological and physiological aspects of their landscapes leads to a broadened view of the institutions. Founded primarily to acquire and display plants, they are now seen as places of refuge, a peaceful and restorative world where visitors can escape from the stress of daily life to be refreshed. Green museums nourish not only the intellect but also the inner being of its visitors. Thus, they more fully serve needs of the larger community.

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