



THE MUSEUM GAZETTE

Landscaping the Gateway Arch Grounds

To most people who visit the Gateway Arch, the soaring stainless steel monument to westward expansion is the only object they focus upon. Although they may also notice the grounds surrounding the Arch, with tree-lined walks, rolling hills, ponds and meadows, few are aware of the careful planning that went into creating this special landscape. Architect Eero Saarinen and landscape architect Dan Kiley planned a landscape for the Arch which complements, enhances and echoes the graceful lines of the structure, while not calling attention to itself. It is this very deceptive quality of the brilliant landscape design which for many years made it one of the undiscovered secrets of Jefferson National Expansion Memorial. These secrets are now coming to light through the research efforts of Park Service landscape architect Gina Bellavia and a contract research assistant named Gregg Bleam.

The original landscape design for the park was created by Dan Kiley, one of the country's leading contemporary landscape architects, who worked with Eero Saarinen from the beginning of the memorial competition in 1947. Their original design was heavily wooded and asymmetrical, that is, one side of the plan was not a mirror image of the other, nor was the Arch itself on line with the Old Courthouse. Several buildings, including two museums and a restaurant complex, were to be built on the grounds, and a long promenade called the "Historic Arcade," complete with a soaring concrete roof, ran along the west side of the Arch, nestled into a created hillside. Within

the Arcade a sculpture garden, museum shops, and exhibits were to be built. In addition, several elements were required by the rules of the memorial competition, including a reconstructed French colonial village to be built in a wooded area near Memorial Drive, and an amphitheater for interpretive programs.

This original landscape design was never built, because federal money was not available for the project, and an agreement could not be made with the Terminal Railroad Association for the removal of the railroad trestle along the levee. It was not until 1957 that an agreement was forged with the railroads which called for the construction of a series of open cuts and tunnels to run between the Arch and the river. Federal money was also authorized at this time to begin construction, so architect Saarinen returned to drawing boards and models to revisit his 1947-48 design. The height and exact shape of the Arch were determined, and several different concepts for the landscape were proposed with the help of Dan Kiley. After a great deal of collaboration, a new landscape plan emerged.

Recent research has revealed that Eero Saarinen had a far greater hand in this new plan than had been previously thought. The new plan was symmetrical and on-line with the Old Courthouse. Gone were the surface museums, replaced with an underground facility beneath the Arch. Also missing were many of the elements required by the 1947 competition. The new grounds were accented by sweeping, curved walks

which mirrored the graceful catenary curve of the Arch itself. This curve, in fact, was repeated over and over again in the plan, and was apparent in the stairways which lead up to the river overlooks, the sides of the grand central staircase from the levee to the Arch, the shape of the railroad tunnel entrances, and even the curvature of the overlook retaining walls, which form an inverted catenary curve. Gone were the forest and the little colonial villages and restaurants, replaced by gently rolling hills and a simplified pattern of trees. The massive, curving grand center stairs, leading from Wharf Street to the Arch, were designed to sweep the eye upward to the crest of the hill. A walkway leading to the historic Old Courthouse from each leg of the Arch was also designed, and plans were made for two pedestrian overpasses for Memorial Drive. The tree-lined walks, a signature element of the work of Dan Kiley, surrounded two reflecting ponds. Kiley projected that the walks would be lined with a monoculture of over 1,000 tulip poplar trees. Two circles of cypress trees in “campfire program” interpretative areas were a vestige of the original 1948 plan. The brilliance of the Saarinen-Kiley plan is evident today in the fact that the rolling hills disguise the railroad cut, several roads, a shipping and receiving point, and a major highway to the extent that most visitors never notice these utilitarian aspects of the site.

In the early 1960s, the landscape plan was discussed in meetings attended by Kiley, Saarinen, park superintendent George Hartzog and Conrad Wirth, Director of the National Park Service (NPS). In the course of these meetings, the final shape of the landscape evolved into the site plan we see today. After the death of Eero Saarinen in 1961, Dan Kiley continued to work with the Park Service on final refinements of the landscape design. In early 1963, Conrad Wirth expressed concern that the tree plantings along the walks were too dense, blocking pedestrian views of the Arch. Kiley adjusted the plan into the scheme which received final NPS approval, and prepared color presentation drawings. The landscape plan was complicated by one final addition, which was due to the unique nature of the Arch itself. Because the Arch structure might be susceptible to high winds, windtunnel studies were conducted. The original grading plan and

these studies were combined to obtain a specific elevation at each end of the north-south walkway of 478’ above sea level, making these the highest points of land on the Arch grounds. These hills actually protect the Arch, keeping high winds from putting too much stress on the structure.

Eero Saarinen had been insistent that Dan Kiley execute the construction documents and specification drawings, but this was not to be, and Kiley’s last association with the project was in 1964. Despite this fact, the final, approved drawing, which represented a classic collaboration between Eero Saarinen and Dan Kiley, was used by National Park Service personnel in Philadelphia to prepare the master plan.

A great deal of pressure was exerted by the local community, through their representatives in Congress, for the landscaping project to begin. Money was available either for a museum or for the landscape, and St. Louisans insisted that the grounds be completed first. In 1968 John Ronscavage of the NPS’s Eastern Office of Design and Construction was assigned to the project, and was ordered to follow the Saarinen-Kiley plan without alteration. A planting plan was drawn up, which outlined a plan for phased implementation. When the first contract for landscaping was advertised, however, local nurserymen criticized the tulip poplar as the dominant tree species for the grounds, because it drops its leaves early in St. Louis due to heat stress. It was also felt by some that tulip poplars would not thrive under the conditions presented by the Gateway Arch grounds.

After a period of study, and despite evidence that tulip poplars would probably fare quite well on the Arch grounds, a decision was made to change the dominant species. The final choice was the Rosehill Ash (*Fraxinus americana*). This species, a seedless male clone of the White Ash, was developed specifically at the Rosehill Gardens in Kansas City as an urban tree, meant to replace the American Elm, which had been decimated by Dutch Elm disease in the 1950s and 60s. The Rosehill Ash had many advantages; it was hardy, would thrive in the alkaline St. Louis soil, and had been bred for an urban environment.

The first phase of landscape construction (1970-72) included the walkways, plantings, and grading on a north-south axis with the Arch. In June 1970, a contract began with Kozeny-Wagner Inc. which included drainage and roof repairs to the underground visitor center. Site grading was designed to direct surface and subsurface drainage toward the two ponds (to be built later), and catchbasins on the walkways by the Grand Staircase. In addition to providing an aesthetic feature, the ponds had a practical application as well. Water was drained from all exterior surfaces of the underground visitor center and ramps to protect the building interior, and then pumped to the ponds. Pedestrian walks were constructed along the north-south axis by Millstone Associates in 1971. In addition, a contract was awarded to Suburban Tree Service of Manchester, Missouri, in 1971 to perform the first phase of planting on the Memorial grounds, including furnishing 573 trees.

From January 1978 to April 1980, the second major phase of the landscaping took place. Schuster Engineering of Webster Groves, Missouri built exposed aggregate walks, roads, and constructed the reflecting ponds. The project involved earth movement, connections to municipal water systems, walk lighting, seeding, sodding, fertilizing and mulching of grass areas, and the creation of storm sewer and discharge areas. Below the park's contoured hills, the most extensive underground irrigation system in the State of Missouri was installed, with 12 1/2 miles of pipe and 875 sprinkler heads. Shelton and Sons Landscaping faithfully executed the planting plan between 1979 and 1980, when the concept of 965 Rosehill Ash plantings was completed. The park's tree species included black pine, oak, maple, bald cypress, redbud and flowering dogwood along with the Rosehill Ash which lined the walks. By 1981, five miles of paved sidewalks, the two reflecting ponds of 1.7 acres each, the lawn area of 46 acres, and the finished planting plan of 2,495 trees, 6,500 shrubs and 5.5 acres of ground cover was complete.

The Gateway Arch and its surrounding 91-acre landscape were added to the National Register of Historic Places in 1966. The current studies of this landscape will lead not only to a better

understanding of how the grounds came into being in their present form, but will also delve into important questions regarding the preservation of contemporary landscapes as cultural resources. Recent research has revealed that the grounds of Jefferson National Expansion Memorial constitute one of the most significant contemporary landscapes in the United States, a landscape which for the most part faithfully executes the wishes of architect Eero Saarinen and landscape architect Dan Kiley. This research has emphasized the importance of the preservation of this historic landscape, along with its companion piece, the magnificent Gateway Arch.