



Roman God Returned to Glory

Losing Weight by the Ton

Concrete that had filled the statue was cut and removed section by section.

Vulcan, the Roman god of fire and forge, has welcomed the sun to Birmingham and “moonied” his southern environs since 1938. Vulcan is an imposing figure. He is 56 feet tall and stands on a 124-foot pedestal, which, in turn, stands atop Red Mountain. Hundreds of thousands of Magic City residents have looked up every day at the largest cast iron statue in the world. But few know the story of how Vulcan was fabricated or why he came to rest in Birmingham, Alabama.

Commissioned by Birmingham’s Commercial Club for the 1904 World Fair in St. Louis, Vulcan is the second largest statue standing in the U.S. behind the Statue of Liberty. In 1903, at the Commercial Club’s behest, Italian-born Giuseppe Moretti sculpted a clay model in Passaic, New Jersey and had the plaster casts transported to the Birmingham Steel and Iron Company for casting molds. Vulcan was then fabricated out of iron and designed to be self-supporting with no internal framework. Vulcan was a trade emissary to the World’s Fair, a demonstration of Birmingham’s mineral and manufacturing potential, at the Louisiana Purchase Exposition’s “Mine and Metallurgy” exhibit. Vulcan received the grand prize.

After that triumph, Vulcan fell into obscurity. He was disassembled, shipped to Birmingham by rail, and then unceremoniously abandoned beside the railroad tracks for unpaid freight bills in 1905. He was reassembled the next year at the Alabama State Fairgrounds. By this time, Vulcan had lost his spear. To compound the indignity, his arms had been put on wrong in the reassembly. Worse yet, he became a salesman for Coca-Cola, Heinz Pickles and ice cream cones.

In the depths of the Depression, Vulcan was taken apart again, repainted and reassembled correctly. In 1936, the Works Progress Administration helped fund a 10-acre park on Red Mountain, the source of Birmingham’s iron ore, and Vulcan became its centerpiece. However, Vulcan was not designed to stand on a mountaintop with a blacksmith’s physique of a barrel chest and broad shoulders buffeted by the wind. At some point along the way, in order to keep him erect, engineers decided to fill Vulcan to his chest with concrete to lower his center of gravity. This may have helped keep him standing, but the co-efficient of expansion for concrete is about 20% greater than for cast iron. The concrete’s expansion led to severe cracking in the lower torso while contraction allowed moisture and rust to damage the cast iron.

Vulcan had been crumbling little by little when, in 1991, Scott Howell of Robinson Iron assessed the status of Vulcan and laid out a plan to restore him to his godly glory. Later, in 1994, Robinson Iron conducted a second study on the restoration of the pedestal. Five years later, Vulcan’s park was closed due to danger from falling pieces of iron. Later that year, Robinson invited ABC Cutting Contractors of Bessemer, Alabama to handle the removal of Vulcan’s concrete ballast—a delicate, if not dangerous assignment—that was not really for the faint of heart.

When ABC Cutting Contractors arrived on the scene, operators found a mammoth statue. Vulcan consisted of 29 cast iron components bolted

together internally by connecting flanges. With a chest of 22.5 feet and a waist of 18.25 feet, Vulcan weighed more than 100,000 pounds without his concrete ballast. The tools of his trade—his spear, anvil and hammer—added another ten tons.

Most importantly, Vulcan extended 170 feet above the top of Red Mountain which explained why ABC’s work was not for the faint of heart. This tedious project required fall protection at all times and made personal harnesses mandatory. The confined space inside the statue put a premium on hearing and eye protection. Safety was planned into every day. Every cut and every lift required careful planning for safety. Occasional high winds would bring the work to a halt.

To begin this project, ABC ruled out expansion grout and heavy percussion tools because the pressure and the vibration that the expansion would have on Vulcan’s cast iron form would damage its structural integrity. Diamond tools were determined to be the best approach because they would be vibration-free and put little stress on the cast iron pieces. At first, ABC tried to “hog out” the concrete but found that the concrete was too sandy to hold an anchor. Therefore, ABC went to Plan B which involved drilling 6-inch-diameter holes around the perimeter of the forms, bisecting them with more holes, freeing up manageable pieces with sledgehammers and then moving the pieces into a skip pan.

To facilitate removal of the concrete, ABC core-drilled around the connecting flanges and bolts. Operators drilled core holes below the casting seams to help Robinson Iron’s employees remove the concrete from the irregular slopes of the castings. After each cast iron piece was lifted off, ABC would start the process again on top of the next casting, working down each one to the next seam. ABC’s operators removed approximately 32 tons of concrete ballast or 24 cubic yards. The three-man crew under the direction of field coordinator James Hugeness worked 4 ½ weeks on this phase. Area Manager Jeff Marshall worked closely to coordinate the wire sawing and core drilling crews with the needs of Robinson Iron.

When ABC reached the lowest torso section, operators discovered severe cracking of the cast iron. Steel City Crane Erection and Rental Inc. rigged its 250-ton crane with a spreader beam to lift both legs together with the lower torso. ABC used a diamond wire saw to separate Vulcan’s huge sandals from the pedestal. With two ½-inch dowel pins in the heel of each sandal cut, Vulcan was placed gently on the earth of Red Mountain, where he was stored and displayed until 2001. In late 2001,



ABC operators worked at difficult heights with very limited access from their work surround.

Robinson Iron gathered Vulcan's iron castings and transported them to their shop in Alexander City to recast and restore the iron man to pristine condition. An internal steel frame similar to the one used in the Statue of Liberty was added. He was then repainted "Vulcan" gray.

Next came the job of reconstructing the 124-foot pedestal. In 2003, Brice Building Company of Birmingham won the contract to reconstruct the pedestal and make improvements to the park to better reflect its 1938 origin. ABC once again helped with this part of the project. They assisted in the removal of the elevator roof and also in the process of isolating the elevator from the pedestal. The job required diamond-cutting tools to protect the original 1938 native sandstone pedestal that lay just beneath the 1971 marble skin facade. ABC operators used hand saws to cut the old observation deck and remove these pieces.

Once the new pedestal was completed and ABC cut access openings to the top of the pedestal, they drilled 24 two-inch-diameter holes, 6 feet in depth for anchors to hold the newly restored Roman god in place. Vulcan celebrated his 100th birthday when the \$14 million renovation was complete and the park reopened in 2004. "Without the expertise of ABC Cutting Contractors we could not have completed this project in a timely manner. Their employees did a great job," said Scott Howell from Robinson Iron.

In November 2006 the National Trust for Historic Preservation presented its prestigious National Preservation Honor Award to the Vulcan Restoration Project. ABC Cutting Contractors of Alabama is proud to have been a part of this historic reconstruction. ■



The renovated statue was placed on top of a new pedestal with observation deck.

COMPANY PROFILE

ABC Cutting Contractors of Alabama is headquartered in Bessemer, Alabama and has offices in Huntsville, Montgomery and Mobile. Established in 1986, ABC services Alabama, Mississippi, and the panhandle of Florida with 45 trucks. The company offers services in core drilling, slab sawing, hand sawing, wall sawing, wire sawing, road and bridge grinding and grooving and Brokk demolition. The company focuses on customer service and safety is their top priority. All the offices joined CSDA in 2004.

RESOURCES:

General Contractor:

Statue Renovation-Robinson Iron Inc.
Alexander City, Alabama

Pedestal Renovation, Brice Building Company
Birmingham, Alabama

Sawing and Drilling Contractor:

ABC Cutting Contractors of Alabama

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Methods Used: Core Drilling, Hand Sawing, Wire Sawing