RED MOUNTAIN CUT NATIONAL
NATURAL LANDMARK
(Red Mountain Cut Geological
Walkway & Museum)
Birmingham Industrial District
US 280 at Red Mountain
Birmingham
Jefferson County
Alabama

HAER No. AL-85

HAER
ALA
37-BIRM,
41-

PHOTOGRAPHS

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
Department of the Interior
P.O. Box 37127
Washington, DC 20013-7127

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WRITTEN HISTORICAL & DESCRIPTIVE DATA

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Location: The Red Mountain Museum, which incorporates the Red Mountain Cut National Natural Landmark, is located at 1421 22nd Street South, immediately to the east of U.S. 280 (the Red Mountain Expressway), Birmingham, Jefferson County Alabama. The Red Mountain Museum office and auditorium are located across the street at 1425-29 22nd Street South on Red Mountain in Birmingham's Southside. The Discovery 2000 Science Museum will occupy the former Loveman's Department Store building located at Third Avenue North and 19th Street in Birmingham's City Center. Access to the Red Mountain Cut National Natural Landmark site from US 280 is circuitous, particularly when travelling southward. The southbound visitor is directed to follow the signs and re-enter US 280 northbound and exit at Arlington Avenue. The entire Red Mountain Museum site contains 3.8 acres.

Ownership: The City of Birmingham. The property has been managed since the 1970s by the Red Mountain Museum, a museum of natural history and geology, which in August 1991 merged with Discovery 2000, a science museum.

Date of Construction: Cut 1970; Museum 1971

Builder/Architect/ Engineer: Alabama Highway Department

Project Information: This report is based upon written documentation donated by the Birmingham Historical Society, reformatted to HABS/HAER guidelines.

Significance: The Red Mountain Expressway Cut through Red Mountain is designated as a National Natural Landmark by the United States Department of Interior and as a National Site of Geologic Interest by the American Geological Institute. The strata exposed by the cut were formed over 160 million years of geologic time. They contain the fossilized remains of a wide range of paleo-environments that existed during this immense timespan. The iron ore and limestone seams exposed

along the walkway are the same ones that were mined to provide raw materials for the Sloss City Furnaces, which are visible from the cut, and the other blast furnaces of the Birmingham District.

DESCRIPTION

Completed in 1970 to facilitate traffic flow to the interstate system, the Cut is among the deepest highway cuts in the United States. The cut is 210 feet deep, 410 feet wide at the top and 650 feet long.

A walkway along the eastern side of the Cut serves as an open-air museum exhibit. Markers along the path and attached to the rock surface interpret the walk-through geological display. Visitors have the opportunity to witness firsthand the geological diversity of physical and mineral resources which gave rise to an industrial center in Birmingham. Visitors observe caves, fossil reefs, volcanic ash, the Red Mountain fault, fossil beaches, limestone and iron ore seams and fossil tracks.

PHYSICAL DESCRIPTION

Topography: The Red Mountain Museum is perched on the northerly facing steep slopes of Red Mountain.

Hydrology: No water bodies or sources of water are found on the Red Mountain Museum property.

Geology: The Red Mountain Expressway Cut, which was recently designated a National Natural Landmark, is one of the deepest highway cuts in the United States. The cut is situated on the southeastern limb of the Birmingham Anticlinorium, a major structure in the Southern Appalachian Fold and Thrust Belt. The cut was completed in 1969, after highway construction teams had moved more than 2 million cubic yards of rock. Strata within the cut are inclined approximately 20 degrees toward the southeast, parallel to the general trend of the cut. Rocks ranging in age from late Cambrian to middle Mississippian are clearly visible. Because the layers of earth are tilted in the cut, these 650 feet of earth span 150 million years of change in the area. Five geological formations are exposed here: the Upper Cambrian Cooper Ridge, Dolomite, the Middle and Upper Ordovician Chickamauga Limestone, the Silurian Red Mountain Formation, the Lower Mississippian Maury Shale, and the Middle Mississippian Fort Payne Chert. This diverse stratigraphy and the associated structural features provide a record of the effect of tectonic events on sedimentation in this sector

of the Appalachian Fold and demonstrate that deformation was in progress this far west as early as Ordovician time.

Vegetation — Limited landscaping is located in the picnic and amphitheater areas, which lie to the south of the Museum's exhibit building. Containing natural vegetation, particularly growth of kudzu on the Red Mountain Cut itself, is an ongoing and costly battle.

The Red Mountain Museum is composed of the following facilities: a) the exhibit building; b) the Red Mountain Cut; c) the geologic walkway; d) a picnic area; e) an amphitheater; f) the administrative office; g) the auditorium; and h) other museum facilities located in several residences owned by the Museum.

a. Exhibit Building: A one-story clapboard structure, the exhibit building is the only architectural structure constructed specifically for the Red Mountain Museum since receipt of its charter in 1971 and its subsequent opening in 1977.

Since 1977, museum programming has focused on interpretation of the entire spectrum of geological history exposed in the Cut. In addition to preparation of museum exhibits, staff members have conducted extensive paleontological digs and have run educational programs for thousands of area students.

When visitors arrive at the Red Mountain Museum, they take a 30-foot walk in time by observing a large painted mural which depicts life ranging from 2.6 billion years ago to approximately 350 million years ago. A number of other displays serve as educational tools to interpret various aspects of geological history in a lively, visitor-friendly manner. Through use of a spectrohelioscope, visitors may study images of the sun on a television monitor; a fiberglass model of the sun shoots solar flares in many directions. An eight-foot prototype of the earth is cut to reveal a glowing molten interior. The exhibit building also houses fossils, rocks, minerals, Indian artifacts, as well as changing exhibitions.

The extensive fossil collection stored at the museum reveals evidence of dinosaurs, ice age mammals, giant whales, turtles, fish and plants. According to a recent report, "the vertebrate paleontology collections of the Red Mountain Museum include some of the finest examples of marine reptiles and birds known from Cretaceous (period) of North America, a significant collection of Eocene whales and a large collection of Pleistocene vertebrates. All of this material is well preserved and therefore has excellent potential for display and scientific study."

b.Red Mountain Cut

c.Geologic Walkway: During the $20 million construction of the Red Mountain Cut, a number of agencies, including the Geological Survey of Alabama and the Alabama Geological Society, as well as many private citizens convinced the State of Alabama Highway Department to preserve the exposed rock formations, thus enabling them to become the basis for geological interpretation. A walkway along the eastern side of the Cut serves as an open-air museum exhibit. Markers along the path and attached to the rock surface interpret the walk-through geological display. Visitors observe caves, fossil reefs, volcanic ash, the Red Mountain fault, fossil beaches, limestone and iron ore seams and fossil tracks.

d.Picnic Area: The site includes a cleared grassed area that contains a number of picnic tables and benches. The area is surrounded by trees on its eastern edge and offers a view of the cut across the Red Mountain Expressway, as well as a scenic view of downtown Birmingham.

e.Amphitheater

f.Administrative Office: The administrative office of the Red Mountain Museum is located in a converted residence situated across the street from the Museum's exhibit building.

g.Auditorium: The Red Mountain Museum Auditorium is located immediately to the south of the Museum office in an adaptive reuse of a residential structure.

h.Associated Museum Structures

HISTORICAL OVERVIEW

The Cut was completed in 1970, after highway construction teams had removed more than 2 million cubic yards of rock. During the $20 million construction of the Red Mountain Cut, a number of agencies, convinced the State of Alabama Highway Department to preserve the exposed rock formations, thus enabling them to become the basis for geological interpretation. Highway Department plans which would have covered the exposed surface of the cut with gunnite were halted. Instead, a 600' walkway was built along the eastern side of the Cut to allow it to serve as an open-air museum exhibit. The Red Mountain Museum was formed to manage the site and to develop interpretive programs for the cut. (This museum merged in August 1991 with Discovery 2000, a privately owned science center to be headquartered in the Birmingham city center, with the cut remaining a satellite interpretive center.)

CONDITION

Although the cut is stable, it is plagued by vegetative growth that is difficult and costly to control. In the fall of 1990, all of the kudzu was removed manually. A staffer removed trees from the Cut itself through a rapelling operation. An analysis of the problem determined that a one-time expense of $75,000 is required to adequately remove the vegetation; an annual expense of $8,000 is necessary for on-going spraying and maintenance.

Several problems are related to the Geological Walkway which provides access to the Cut and provides an interpretive walk-through geological display. The existing ramp, built at the time of construction of the Cut, rotates 10 feet down the slope of the mountain due to a previous problem with storm sewer overflow. Because the original walkway was too steep and was not handicap-accessible, the Red Mountain Museum received a federal grant for design of a new ramp. Design work has been completed; the $225,000 project awaits funding.

Lack of funds has also affected the maintenance of the interpretive signage along the walkway and the Cut. In a number of cases, the reference markers on the Cut have faded from view or are no longer in place. Several of the sign posts are in need of repair.

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Site Visit, 7/16/91