VALLEY VIEW RED ORE MINE
Birmingham Industrial District
Robert S. Smith Dr.,
on grounds of "The Club"
Birmingham ~~vic.~~
Jefferson County
Alabama

HAER No. AL-45

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HISTORIC AMERICAN ENGINEERING RECORD
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LOCATION: The Valley View Iron Ore Mine Site is located in the city of Birmingham, in Jefferson County, Alabama, at the crest of Red Mountain, one-half mile southwest of the point where the Montgomery Highway (20th Street South) crosses the ridge. It is adjacent to and south of the abandoned rail bed of the Birmingham Mineral Railway. This segment of the rail bed, which stretches approximately 2.2 miles from the Montgomery Highway to Green Springs Highway, is currently under development as a hiking and biking trail and constitutes the most convenient access to the site. The property is currently owned by The Club, Inc., a private dinner club, and the mine site lies in a saddle or gap which is adjacent to and southwest of the clubhouse and its approaches and parking facilities.

SIGNIFICANCE: Although the Valley View Mine was not one of the largest, nor one of the most productive ore mines in the Birmingham District, it is nevertheless a significant example of a stage of mining operations critical to the evolution of the iron industry of Birmingham, crossing the boundary between the second and third phases of iron ore mining practice employed in the district. Within this paradigm, the first phase consisted of surface mining, as the outcrop of the ore seam was stripped along the entire length of Red Mountain. Although this practice was certainly employed at the Valley View Mine Site, little evidence exists throughout the district. This labor-intensive, low technology method of extraction left only an open trench, which has largely been obscured by erosion, reforestation, and subsequent development.

The second phase involved the use of drift mines where ravines along the southeast flank of the mountain cut through the ore bed. At these sites, the ore was exposed so that mine entries could be driven along the strike of the ore seam. These operations typically consisted of a series of drift mines joined at the surface by an inclined plane that transported the ore after it was delivered to the mine entrance. This system of ore extraction was vital to the early development of the Birmingham District; with natural drainage

and ventilation, and minimal surface apparatus, these mines were economical to operate. The availability of suitable quantities of ore at low cost gave local iron companies an advantage in the marketplace that encouraged the growth of a major industrial district.

The Valley View Mine Site displays evidence of this mining practice. Numerous drift entries and tram grades illustrate this stage of development, but even within this mine type the Valley View Mine is unique within the district. Most operations, such as those at the Ruffner Iron Ore Mines, utilized a gravity-operated incline to deliver the ore to the foot of the hillside. In that arrangement, a counterweight was raised by the force of the laden ore cars being transported to the foot of the incline. This weight provided the power necessary to return the empty cars to the drift entrances, eliminating the need for a hoist. However, the Valley View site did not lend itself to this system; since the railway serving this site was on the northwest side of the ridge, ore from the drifts had to be raised to the crest of the mountain before being lowered to the railway. This circumstance required the use of a steam hoist, which represented a higher level of capitalization, as well as a higher level of technology. Valley View is most likely the only surviving ore mine site in the Birmingham District that employed an engine incline rather than a gravity incline.

The third level of ore mining development in the Birmingham District was the use of slope mines, which followed the ore seam underground from the outcrop and developed extensive underground mining complexes. This practice established a higher level of mechanization in area ore mines, offsetting additional expense with an increase in productivity, and providing access to greater quantities of ore. The slope mines along Red Mountain provided for the continued growth of industry in the Birmingham District, keeping pace with the expanding scale of the iron industry as the district matured.

Ore mining companies in the area began to employ this practice as the ore deposits accessible by drift mining were depleted, and often operated

both mining systems simultaneously during a transitional period. This was the case at the Valley View Mine, where the two systems were interrelated to an unusual degree. This mine had already been equipped with a steam hoist, incurred boilers and other attendant equipment, so much of the expense of upgrading the mine operation had already been included. As the slope was driven down the dip of the ore seam, one hoist was used to handle ore being produced in both mining operations. Consequently, a single surface plant simultaneously served two generations of mining practice.

A significant feature of the Valley View site is its contiguity with the railbed of the Birmingham Mineral Railway. This industrial railroad established the critical linkage between the individual elements of the iron industry, providing transportation between coal mines, ore mines, blast furnaces, rolling mills, and foundries.[1] This contiguity enhances the potential for interpretation of the site, as the rail bed has remained as a striking feature of the northwest slope of the mountain, and is currently being developed as a public hiking and biking trail.

Of particular interest at the Valley View Site is its illustration of the proximity of materials, an important theme around which the Birmingham Industrial District can be interpreted. The impressive view from the Valley View hoist house foundation includes the eastern end of Jones Valley and the city of Birmingham. This includes the blast furnace complex at Sloss Furnaces National Historic Landmark, several foundries, and an active by-product coke plant. Across the valley, the far ridge indicates the boundary of the Warrior Coal Field, which provided the fuel for the furnaces and foundries. Within the valley, though unseen from this vantage, are numerous limestone quarries that provided flux for the furnaces, completing the mineral requirements for iron production. This vista graphically

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[1] For more information on the Birmingham Mineral Railroad, read Mark M. Brown and Scott C. Brown, "The Industrial Railroads of the Birmingham District" (Washington, D.C.: H.A.E.R., 1992).

illustrates the compactness of the complete iron production system that characterized the development of the Birmingham Industrial District.

Project Information: This recording project is part of the Historic American Engineering Record (HAER), a long range program to document the engineering, industrial, and transportation heritage of the United States. The Birmingham District Recording Project was cosponsored during the summer of 1992 by HAER and by the Birmingham Historical Society, Marjorie L. White, Director.

Project Historian: J. Lewis Shannon, Jr.

HISTORY

Toward the end of the nineteenth century, the urban boom in the United States created a rapidly expanding market in cast iron sanitary pipe and fittings. In an effort to corner the market in this commodity, a group of investors bought the nine principal foundries producing sanitary pipe in 1899, forming the Central Foundry Company. This enterprise proved to be at the mercy of an unstable pig iron market, so in 1901 these investors formed the Central Iron and Coke Company as a subsidiary of the Central Foundry Co. This new company was to build and operate a blast furnace, providing pig iron to company pipe foundries. Three of the company foundries were in Alabama, so it was decided that the blast furnace operation would be located in Holt, Alabama, near the City of Tuscaloosa, and on the periphery of the burgeoning Birmingham District. The furnace first went into blast on 1 August 1903.[2]

The decision to expand into basic materials production is an example of vertical integration. Numerous iron companies had acquired mineral lands to supply their furnaces with fuel and ore, and had constructed coke ovens to convert coal from company mines into coke for company furnaces. One company, the Woodward Iron Co., had taken the measure of constructing a company railroad to connect its operations, freeing it from dependence on common carriers and coining the term "linear production". This system had been shown to be both efficient and lucrative, immune to fluctuations in the materials markets.

To pursue the ideal of vertical integration, Central Iron and Coal sought mineral lands. Brown hematite (ferric oxide) ore was provided by mines in Tuscaloosa County, near the town of Woodstock. The preferred red hematite could be found in Red Mountain, which bordered the cities of Birmingham and Bessemer, and the company purchased one of the few remaining tracts along the mountain, overlooking downtown Birmingham.

The Valley View Mine followed the general pattern of development of ore mines in the Birmingham District. The largest seam of ore in the district, known as the "big seam", crops out (comes to the surface) at or near the crest of the mountain and slopes down beneath the surface toward the southeast. The first stage of development involved simply stripping the exposed ore along this outcrop. Often the richest ore, it had been heavily weathered so that some of the impurities had leached out, and was surely the easiest, and therefore the cheapest, ore to extract. But this

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[2] Alabama Blast Furnaces (Woodward, AL: Woodward Iron Co., 1940), 77-78.

ore was quickly depleted as the seam dipped (sloped) below the surface and was overlain by other strata. In locations where steep ravines cut into the hillside, the ore seam was exposed along the flanks of a ravine, and the outcrop was followed "down dip" until it once again dipped beneath the surface. Along this section, parallel drift headings[3] were driven along the strike[4] of the seam and were joined above ground by an inclined tramway which collected the loaded ore cars as they were brought to the surface. This represented the second phase in the evolution of ore mining.

Although Central Iron and Coal owned this mine, it was operated under contract by the Birmingham Ore and Mining Company. Early operations were complicated by the fact that the railway which served the site, the Birmingham Mineral branch of the Louisville and Nashville Railroad, was on the wrong side of the mountain. From Lone Pine Gap, 1/2 mile to the northeast of the mine, to Walker Gap, nearly two miles to the southwest, the railway crossed to the northwest side of the ridge, traversing the hillside which faced the city of Birmingham. Rather than simply deliver the ore downhill to the railroad, as was the standard procedure in the district, workers at the Valley View had to haul ore over the crest to reach the tipple. And although the ore outcrop did not extend far past the crest into the next valley, this condition quickly became unmanageable as the quantity of ore being produced grew, and had to be corrected before an incline could be put into operation.

To solve this transportation problem, the company installed a steam hoist at the crest of the site. This differed markedly from most other drift operations in the district. In locations where ore was to be delivered to the bottom of the hillside, the tram was equipped with a counterweight. As loaded ore cars were guided onto the tram from the drift entries, the additional weight raised a counterweight as the tram was lowered to the tipple. This counterweight then lifted the tram and the empty ore cars back up to the entry. The gravity plane, as it was known, was much preferred to the engine plane by virtue of the fact that gravity was free, and the apparatus was quite

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[3]A drift is a mine which is level or sloping up as it enters a hillside. Typically, drift entries in the Birmingham District ore mines sloped slightly upward to provide natural drainage and to utilize gravity to assist loaded ore cars down to the surface.

[4]The strike is that aspect of a geological stratum that defines a horizontal line, that is, perpendicular in plan to the dip of the stratum.

inexpensive to install.[5]

Drift mines in the walls of ravines inevitably depleted the ore accessible by that method, leading to the third phase of mine development. Slope mines were driven underground down the dip of the seam, with parallel headings turned off to either side; essentially underground versions of the inclined plane, their entries opened onto a haulage slope rather than to the surface. These headings were driven off the main slope at intervals of forty to fifty feet, following the strike of the ore seam. Underground mining involved drilling and blasting the ore, then "mucking", or loading the loose ore into mine cars. As a heading moved away from the slope, it was widened by "stoping", or mining ore on the "up dip", or uphill side. This way, miners had the advantage of gravity bringing loose ore toward them instead of away. At intervals of 150 to 200 feet, openings called "upsets" were made between adjacent headings, improving ventilation and increasing the percentage of ore that was recovered. Mules were typically employed to haul cars to the main slope. In mines where a slight pitch utilized gravity to transport loaded cars to the slope, mules frequently were used to return empty cars to the work face. In the main slope, loaded cars were hauled to the surface by a stationary hoist equipped with a long steel cable. This usually required the addition of a power hoist and related equipment.

In the Birmingham District, many of the ore mines that made the transition from the second to the third stage of development experienced a period during which the two mining practices overlapped, but this transition began sooner at the Valley View than in most mines. Since a hoist was already in use at the Valley View, there was little reason to delay beginning this stage of mining; in fact, it was possible at this mine to integrate the two mining practices. The slope was driven down on the west side of the ravine, or the right side facing down the slope, and the left headings off the slope were driven out the surface and into the ravine. Ore cars from drifts in the east side of the ravine were then brought in through these headings

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[5]Bureau of Mines, Iron-Ore (Hematite) Mining Practice in the Birmingham District, Ala., by W. R. Crane (Washington, D.C.: U.S. Department of Commerce, 1926), 6-7; United States Geological Survey (USGS), Bulletin 400: Iron Ores, Fuels, and Fluxes of the Birmingham District, Alabama, by Ernest F. Burchard and Charles Butts (Washington, D.C.: U.S. Department of the Interior, 1910), 58-62; Alabama Geological Survey, Report on the Valley Regions of Alabama (Paleozoic Strata), Part II: on the Coosa Valley Region, by Henry McCalley (Montgomery, AL: Alabama Geological Survey, 1897), 368-372.

and hauled up the slope to the crest.

Work at the Valley View Mine probably started in 1905, and the slope was begun in 1906.[6] By January 1909, the slope had been extended underground about 700 feet, dipping at an angle of twenty degrees, with three left and eight right headings turned off from the haulage slope. Ore cars were hauled to the crest, then guided across a trestle, probably of timber construction, to a tipple on the northwest side of Red Mountain. Ore was dumped from the cars into a crusher, which discharged directly into rail cars on a siding. A thickness of about ten feet was mined in the Big Seam, yielding ore that varied from 36 to 45 per cent iron.[7]

The Valley View was closed in 1916, but reopened in 1921. At that time the mine was upgraded with the addition of a concrete portal, extending 75 feet down the slope from the mine entrance.[8] It is likely that the hoist was converted from steam to electric power at the same time.[9] By 1923, the surface plant included a barn, a water tank, and a mine camp with twenty-three houses.[10] The mine was permanently closed in 1924.[11]

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[6]A precise starting date is difficult to establish for the Valley View. A date of 1900 is given by J.R. Thoenen and Avery H. Reed, Jr. in The Future of Birmingham Red Iron Ore, Jefferson County, Ala., U.S.Department of Mines , Report of Investigations 4988 (1953), Table 1, 2-3. This date seems early, since the company blast furnace was not completed until 1903, and Jefferson County Probate Records indicate that the Birmingham Ore and Mining Company, which operated the mine, was not incorporated until 8 February 1905. The date of 1906 for development of the slope is more reliable, as this date is cast into the concrete portal of the mine.

[7]USGS, Iron Ores, Fuels, and Fluxes, 62

[8]Bureau of Mines, Future of Birmingham Ore, Table 1, 3-4; Ted Bryant, "Opening of Old Mine to Public Discussed," Birmingham Post-Herald, 8 April 1965.

[9]This was a common practice in the United States at that time, and surface remains are consistent with such a conversion.

[10]Leah Rawls Atkins, The Club: A History: 1951-1986 (Birmingham: The Club, Inc., 1986), 19. According to Dr. Atkins, this information was found in a mine map, dated 1923, and currently in private hands.

[11]Alabama Blast Furnaces, 79

Although this marked the end of mining activities at the Valley View, it by no means ended plans for the site. In June 1948 the site was purchased by investors intent on building an exclusive supper club overlooking the city, and in 1951 The Club was completed. This was no small feat; the location of the building was changed twice to adjust for the mine workings. In addition, forty support pilings for the foundation had to be driven through mine tunnels and into the bedrock beneath. The old mine did provide one benefit for The Club; since the mine had been abandoned it had flooded, and the 64 degree water was utilized in air conditioning the clubhouse.[12]

The mine site continued to capture the imagination of Birmingham residents. In February 1956 a plan was presented by the Chamber of Commerce to construct a "skyline cable car" ride from the statue of Vulcan, standing atop the mountain 1/2 mile northeast of the site, to the mine entrance. Visitors would be taken inside the mine, where "beautifully lighted" displays and exhibits would depict the story of mining in Alabama.[13]

Although this idea never saw fruition, the publication of this concept caught the attention of Robert S. Smith, founder of The Club. Smith harbored similar visions of opening the old mine to the public, and contacted Elliot and Bradford, the architectural firm in charge of developing a master plan for the renovation of Vulcan Park. On 28 February 1956, Smith took one of the architects into the mine for a tour, explaining that he had gone to the expense of having the mine inspected by mining engineers, and had obtained an estimate of the cost of cleaning out and reinforcing the mine to make it safe for the public. The plan that Elliot and Bradford devised to develop the mine as a tourist attraction was based on rail transport to bring visitors from Vulcan to the mine entrance. This plan expanded on the concept of an underground mining museum, adding an auditorium with a historic cyclorama, an illuminated waterfall, a subterranean boat ride complete with "black light" murals, and a blind fish pond. This idea also failed.[14]

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[12]Jefferson County Board of Equalization records; Atkins, The Club, 26-29; Elliot and Bradford, Architects, "'Master Plan for Vulcan Park' for the Park and Recreation Board of the City of Birmingham" (Birmingham, AL: Nimrod Long and Associates, n.d.), 9, photocopied.

[13]Irving Beiman, "Skyline cable car may be reality here 'ere long," Birmingham News, 28 February 1956.

[14]Elliot and Bradford, "Master Plan," 8-10.

The last known plan to open the Valley View to the public was presented in 1965, when the Vulcan Park Improvement Commission, chaired by Birmingham architect Fred Hallmark advanced a proposal that included an amphitheater capable of seating 18,000. This proposal utilized a rubber-tired train to transport tourists along the old rail bed from Vulcan Park to the mine site. The underground portion of the plan, though not as ostentatious as the previous concept, was still ambitious; it included an auditorium capable of seating 800 persons.[15]

Since that time, the Valley View has been largely neglected. All known entrances have been bricked up for safety. The last standing structure, the brick hoist house, was demolished sometime between 1949 and 1964.[16]

DESCRIPTION

The Valley View Mine Site is approached from the abandoned bed of the Birmingham Mineral Railroad, currently in use as a utility access road and under development as a public trail. From this point, the striking feature is the foundation of the ore crusher looming high above the road bed. This massive structure, constructed of poured concrete, appears to have held a gyratory crusher, such as a Gates or McCully type crusher. Close by the side of this foundation is a smaller machine mount, such as that which would have held the drive motor that powered the crusher. The alignment of the two foundations is consistent with this arrangement, and power would have typically been transferred via a drive belt. Both foundations have machine mounting bolts imbedded in the concrete. From this point, the entire site is in virtually a straight line.

Proceeding directly up the slope from the crusher foundation, the next structure encountered is the foundation of the hoist house. This rectangular foundation stands at the crest of the mountain, overlooking the city of Birmingham. The northwest side of the foundation is built up above grade with concrete blocks, but the floor is a heavy concrete slab. Within this slab are numerous conduit openings and mounting bolts, and the southwest half is dominated by the well for the hoist winding.

Beyond the hoist foundation, the grade for the mine car track is clearly evident. This grade was dug below natural ground level, and appears as a trench running directly down the southeast face

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[15]Ted Bryant, "Opening of Old Mine To Public Discussed," Birmingham Post-Herald, 8 April 1965.

[16]Jefferson County Board of Equalization records.

of the hillside. The southwest (right) side of the trench is defined by a high concrete retaining wall, while the northeast (left) side consists of a lower wall of stone.

This trench terminates at the mine portal. Construction is of poured concrete, and the arched entry is surmounted by a rectangular parapet. Cast into the concrete above the arch is the name "VALLEY VIEW", and cast into the upper corners are the dates, "1906" and "1921." The opening itself has been sealed with a heavy iron grate, the door of which has been welded closed, and beyond which is a concrete block wall. The terrain to either side of the portal would probably be considered too treacherous for safe public access.

FURTHER RESEARCH

Although this site may prove to be a candidate for productive archeological research, it is not likely that much additional information will be found in archival sources. An extensive search for records of the Central Iron and Coal Company or the Central Foundry Company yielded only rumors. Joyce Lamont, Special Collections Curator at the University of Alabama Library in Tuscaloosa, contacted an accountant who had been involved in the company bankruptcy proceedings. She was told that, following the bankruptcy, company records were burned by order of the courts. It is therefore likely that any remaining sources are in private hands, with no known access.

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