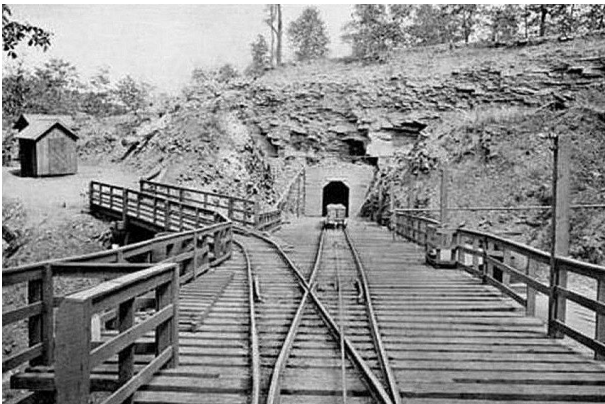


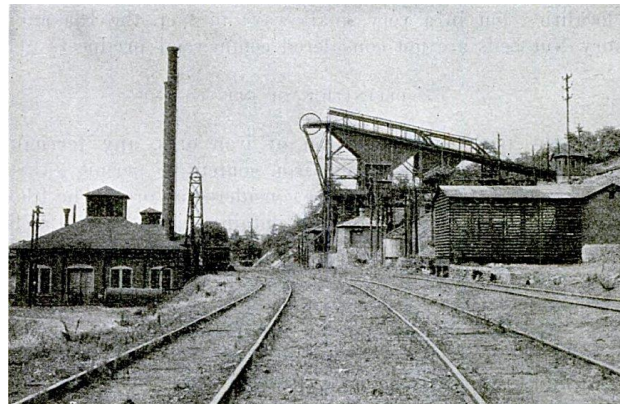
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Brief History of Birmingham, Alabama Iron Ore Mining

There are both Red Iron Ore (Hematite) and Brown Iron Ore (Limonite) deposits in the vicinity of Birmingham. These deposits are the southeastern continuation of the Silurian Clinton Iron Formation which extends from New York State along the Appalachian Mountains. Red Mountain on the east side of the city was the location for most of the iron mines. Many antebellum charcoal furnaces utilized the Brown Limonite Ore; however, after the Civil War, the mainstay of the iron and steel industry was the Red Mountain Hematite Ore. The hematite ore beds were in the Red Mountain Formation with a dip of about 16°. The greatest production came from the "Big Seam." This seam was 15-22 feet thick and divided into parts by a small bed of slate. Smaller amounts of production came from the thinner Ida and Irondale Seams located above and below the Big Seam respectively.

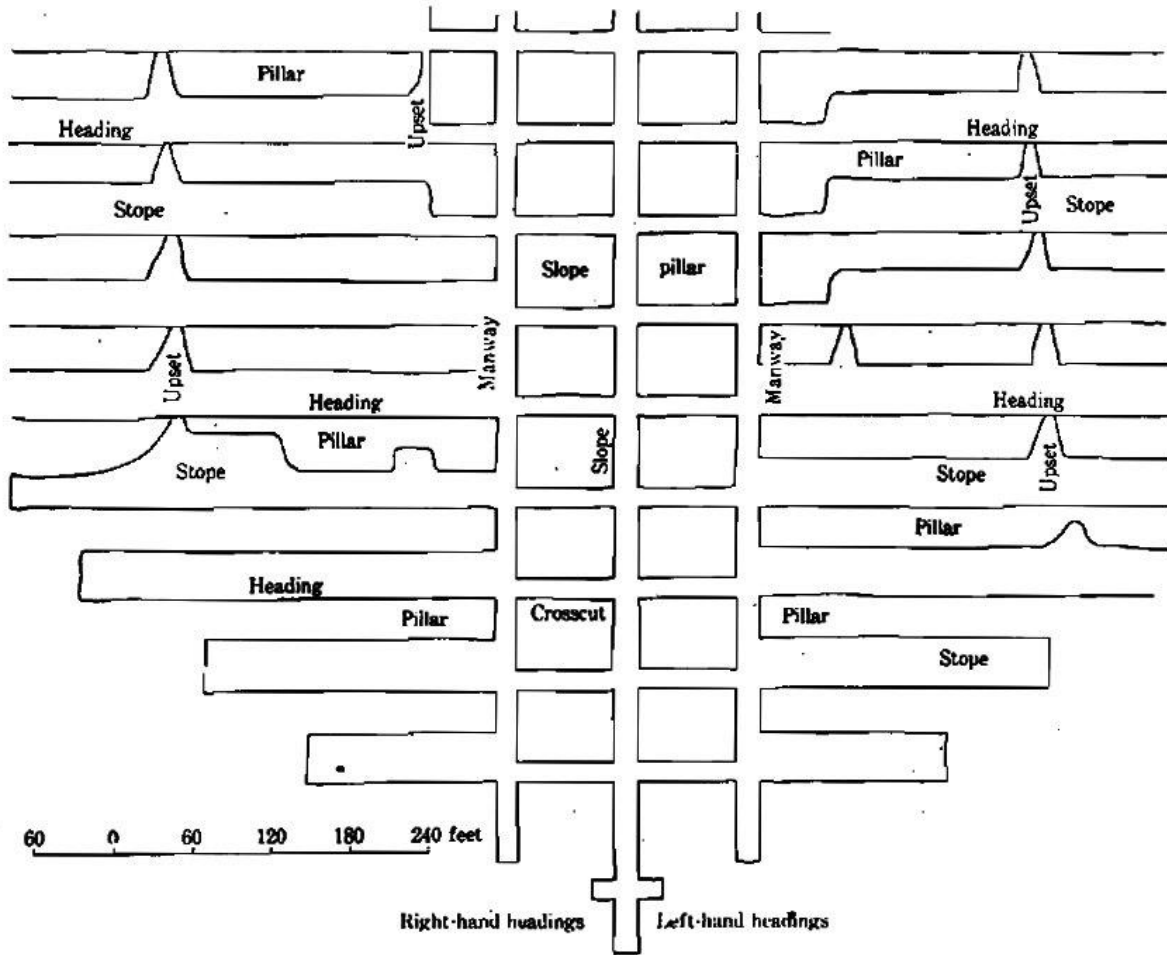


Entrance to a Red Mountain Underground Iron Mine, ca1908.. (Library of Congress)



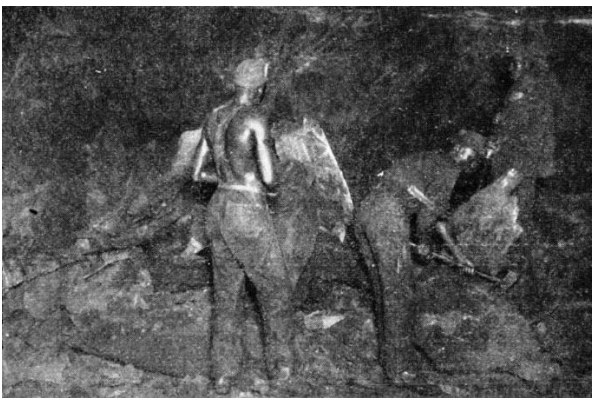
Ore tipple and railroad loading facilities at a Red Mountain Iron Ore Mine, ca1923. (USBM)

Early surface mining took place along the outcrop on Red Mountain but subsequently moved underground following the dip of the ore beds. Over the years, many variations of stope and pillar mining were used. Inclined slopes for ore hoisting were driven down dip in ore from the outcrop. Manways were driven parallel to and at some distance away from the slopes. These were used by the miners to access the workings. Headings (levels) were driven in the ore from the slopes and perpendicular to them. Stopes were mined between the headings.

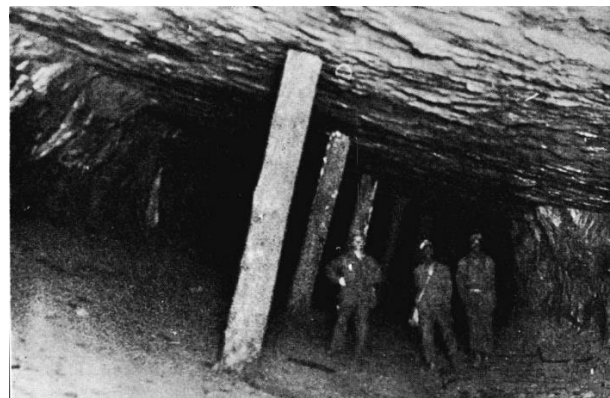


General plan of Red Mountain iron ore mine development, ca1923. (USBM)

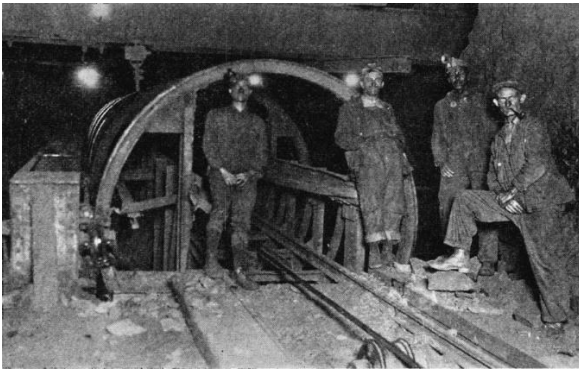
The two parts of the Big Seam were frequently mined as separate benches in the stopes. Barren slate was discarded underground. Rails were laid in the headings for transporting cars to the slope. Timber supports were used in areas of weaker ground. Some iron mines used leased convict labor to keep costs down.



Early hand loading and cleanup after a blast, ca1923. (USBM)



Timber supports in a Red Mountain Iron Mine, ca1923. (USBM)

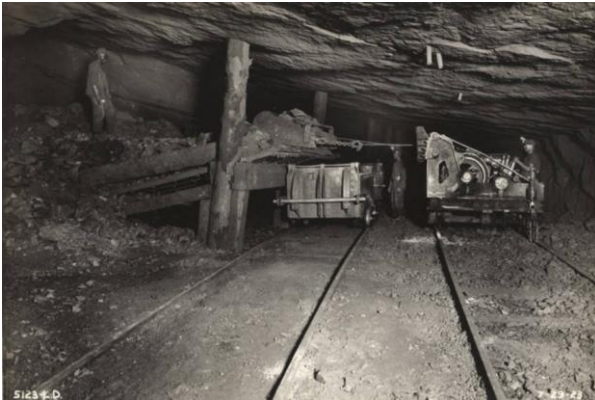


Rotary car dump at the slope of a Red Mountain Iron Mine, ca1923. (USBM)



Skip at the top of the slope dumping ore into bins for loading train cars, ca1923. (USBM)

Early hand loading gave way to the use of “automated” mining using slushers and, later still, Joy loaders. Hand tramming and mule haulage gave way to the use of mine locomotives. (See W. R. Crane, 1924, for a more complete description of iron mining methods in the early 1900s.)



Automated iron ore mining using a scraper to load ore cars in a heading, ca1930. (Alabama Archives)



Underground mining advanced to using Joy gathering arm loaders and shuttle car haulage from slope to slope, ca1960. (Red Mountain Park)

The ore grade in the Red Mountain mines was around 36% iron and, while the ore contained no sulfur, it was relatively high in phosphorous. The phosphorous content and metallurgical practice in the late-1800s caused it to be used to make pig iron rather than steel. Later, the availability of improved technology permitted its use in steel making.

Iron ore mining in the Birmingham District followed the ups and downs of iron and steel production. Active mining stopped in 1975. After that, cheaper imported ores were used until the iron and steel industry was mostly shut down. It is estimated that from 1840 to 1975, 375 million short tons of iron ore were produced in the Birmingham District.

References:

W. R. Crane, "Iron-Ore (Hematite) Mining Practice in the Birmingham District, Alabama," Bulletin 239, U. S. Bureau of Mines (Washington, DC: GPO, 1924).

W. R. Crane, "Red Iron Ore Mining Methods in the Birmingham District, Alabama," Mining and Metallurgy, American Institute of Mining, Metallurgical, and Petroleum Engineers, September 1924, (New York, NY: AIME, 1924) pp. 1-33.

Red Mountain Park History, <https://redmountainpark.org/about/history/>, Accessed September 26, 2021.

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