For Your Safety

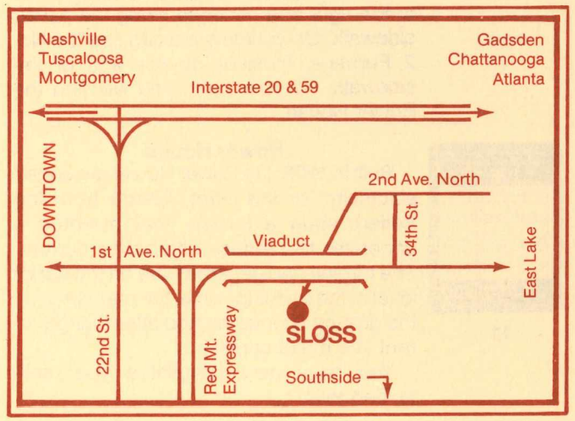
For ninety years Sloss was an operating industrial site with many inherent dangers. The fences and yellow handrails are here for your protection. Please do not climb over the fences or handrails, or climb on any of the structures.

Sloss Furnaces National Historic Landmark
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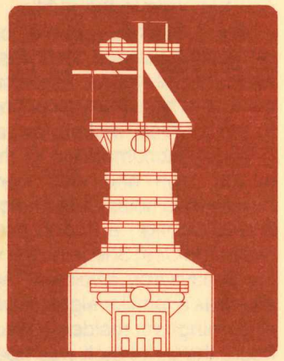
Entrance at 2nd Avenue North & 32nd Street
Hours: Tuesday-Saturday 10:00 to 4:00
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Sloss is a Museum of the City of Birmingham.



SLOSS FURNACES

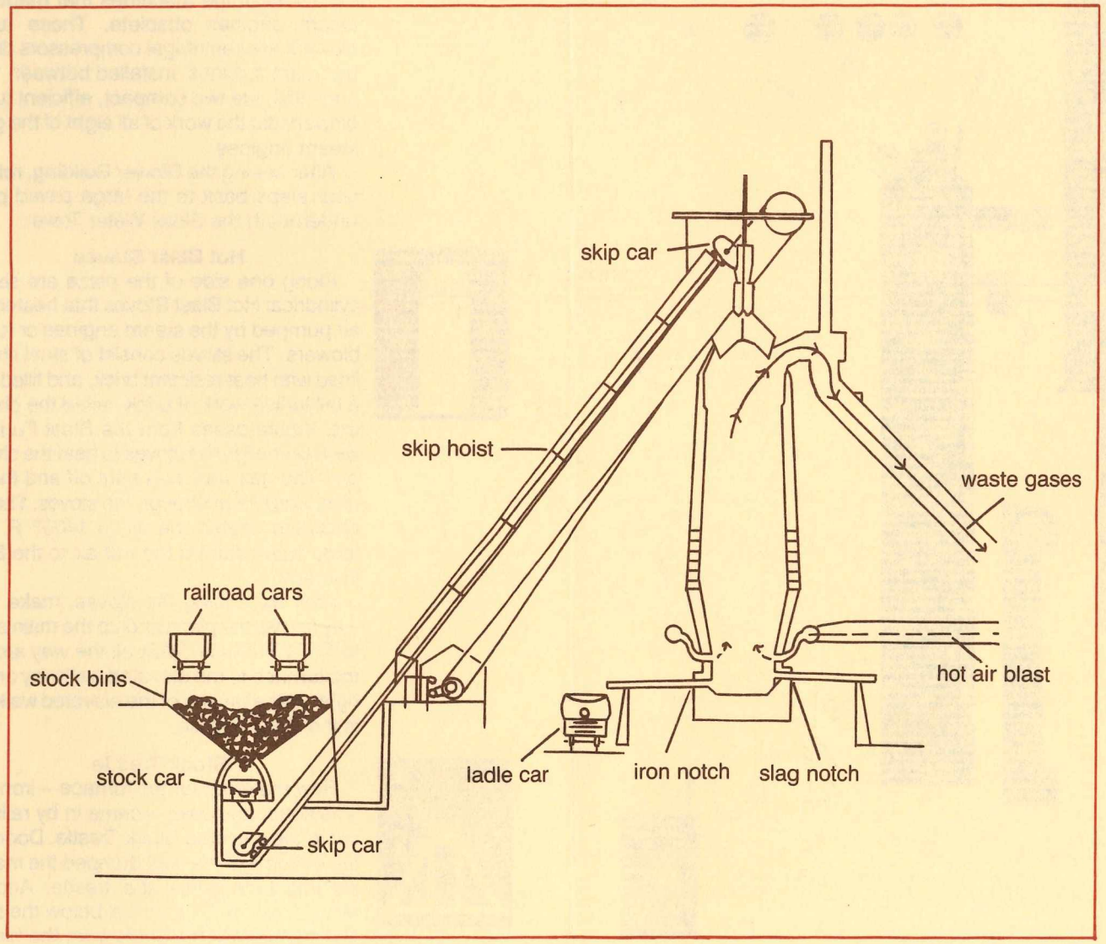
National Historic Landmark

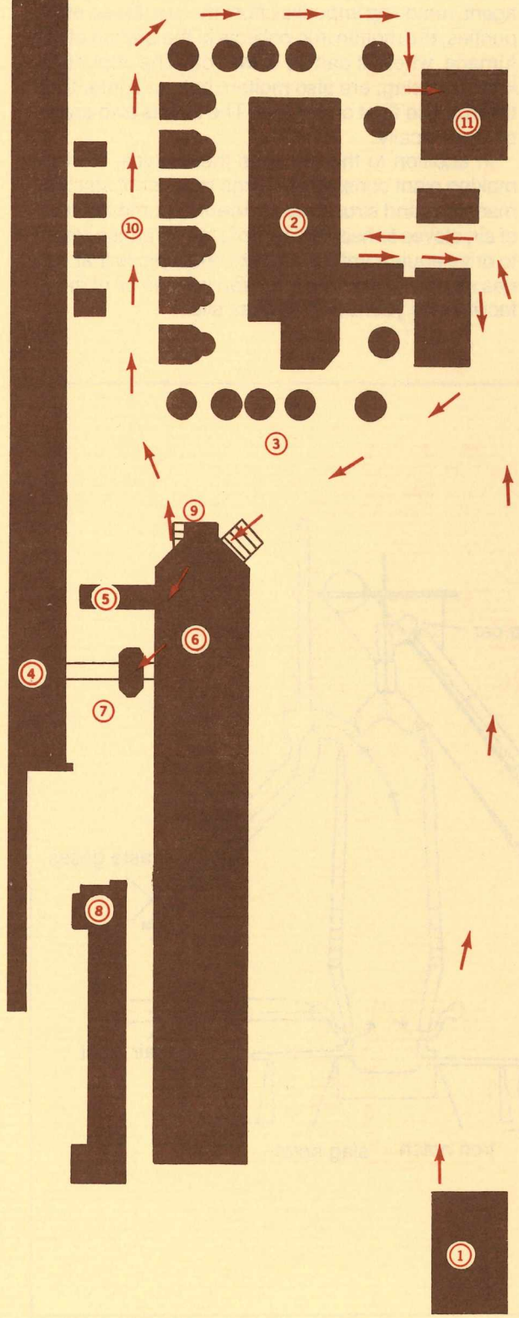
A Self-Guided Tour

Making Iron in a Blast Furnace

Ironmaking is the quintessential Birmingham industry. The raw materials for making iron—iron ore, limestone, and coal—are available in abundance in the Birmingham area, and for some ninety years men turned these materials into pig iron at Sloss. The heart of the Sloss operation was a pair of large blast furnaces. A blast furnace is a cylindrical steel vessel, lined with heat-resistant brick. Iron ore, limestone, and coke (which is made from coal) are charged into the top of the furnace, while super-hot air is blasted upward from the bottom of the furnace. The blast of air burns the coke, releasing gases that react with the iron ore. The limestone acts as a flux, or cleansing agent, removing impurities from the ore. Freed of impurities, the molten iron collects in the bottom of the furnace, where it can be drawn off. The impurities, known as slag, are also molten, but are lighter than the iron and float on top of it. The slag is also drawn off periodically.

In addition to the furnaces themselves, an ironmaking plant consists of a large number of auxiliary machines and structures: blowers to pump the blast of air; stoves to heat the air; boilers to produce steam to drive equipment; and a network of pipes that carries steam, water, and gas. You will see all of these facilities as you tour the Sloss site.







1

Visitor's Center

You will begin your tour at the Visitor's Center. Once an electrical repair shop and a bath house for furnace workmen, this building now houses rest rooms, a gift shop, slide show theater, and administrative offices. From the door of the Visitor's Center you will walk almost 1½ blocks to the heart of the furnace complex. Your tour follows the path of the air and raw materials as they flowed to the furnace, and the path of the iron as it flowed from the furnace.



2

Blower Building

Through the open doorway of the Blower Building are the giant machines that pumped the air blast to the Hot Blast Stoves. In the main portion of the building is a row of eight huge steam engine/air compressors, all built in the early part of the century. They stand more than thirty feet tall and turned flywheels twenty feet in diameter. Adjacent wings of the building house examples of the machines that made the steam engines obsolete. These turbo-blowers are centrifugal compressors driven by steam turbines. Installed between 1949 and 1951, the two compact, efficient turbo-blowers did the work of all eight of the great steam engines.

After seeing the Blower Building, retrace your steps back to the large paved plaza underneath the Sloss Water Tower.



3

Hot Blast Stoves

Along one side of the plaza are six tall cylindrical Hot Blast Stoves that heated the air pumped by the steam engines or turbo-blowers. The stoves consist of steel shells, lined with heat-resistant brick, and filled with a tall lattice work of brick called the checkers. Waste gases from the Blast Furnace were burned in the stoves to heat the checkers. The gas was then shut off and the air blast was blown through the stoves. The hot checkers heated the air to 1400° F, and large pipes carried the hot air to the Blast Furnace.

After examining the stoves, make your way across the plaza and up the main stairs to No. 1 Furnace. Walk all the way around the furnace to the elevated walkway on the right. At the far end of the elevated walkway is the Stock Trestle.



4

Stock Trestle

Raw materials for the furnace—iron ore, limestone, and coke—came in by railroad car to the elevated Stock Trestle. Doors on the bottoms of the cars dumped the materials into bins below the trestle. Another railroad car ran in a tunnel below the bins, and transferred materials from the bins to the Skip Hoist.



5

Skip Hoist

The inclined Skip Hoist hauled raw materials from the tunnel below the Stock Trestle to the top of the furnace. A system of steam-powered pulleys pulled two small skip cars up and down the incline. The skip cars carried iron ore, limestone, and coke up the incline and dumped them into the furnace.

After viewing the Stock Trestle and Skip Hoist, cross the walkway back to the Cast Shed.



6

No. 1 Furnace and Cast Shed

You are now standing in the Cast Shed. At one end is the amphitheater, constructed since the closing of the furnaces. At the other end of the Cast Shed is the No. 1 Furnace. The original Sloss furnaces were built in 1882 and were replaced in the mid-1920's by the furnaces you see today. There are two furnaces at Sloss, but at present only No. 1 is open to the public.

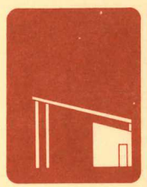
The Cast Shed was the "business end" of the blast furnace, for it was here that the liquid iron came out. Since ore, limestone, coke, and hot air were continuously fed into the furnace, molten iron and slag continuously accumulated in the bottom, or hearth. Iron and slag were withdrawn through two holes called notches. The slag flowed through a trough into the pits between the Cast Shed and the viaduct. Looking like lava from a volcano, the fiery, molten slag was a familiar sight to five generations of Birmingham residents. About every four hours the iron notch was opened, and the molten iron flowed through the curved trough, called a runner, into the Ladle Car below. Follow the runner back to the elevated walkway.



7

Ladle Car

Under the elevated walkway is the Ladle Car, a large steel kettle lined with heat-resistant brick and mounted on wheels. It transferred molten iron from the furnaces to the Pig Caster. As you look down the railroad tracks you will see the remains of the Sloss Pig Caster.



8

Pig Caster

The chunks of iron Sloss sold to its customers were called pigs. Unfortunately, little remains today of the machine that produced these pigs. The heart of the Pig Caster was a conveyor belt made up of shallow molds linked together. In operation the conveyor belt was reminiscent of the treads on an army tank. The Ladle Car full of molten iron was pulled to the Pig Caster, and the ladle was tilted to pour out the iron. A system of runners carried the iron to the conveyor belt of molds. As the moving molds passed under the stream of iron they were filled, and as the conveyor moved along its path the molds were sprayed with water to cool the iron. When the conveyor reached the end of its run and the molds turned over, the now-solid pigs of iron fell out into the railroad cars.

Retrace your steps back around the furnace, and then to the stairways leading back to ground level.



9

Pyrometer House

The two-story brick building at the foot of the stairs had two names. Officially it was known as the Pyrometer House, after the temperature measuring instruments, or pyrometers, that were mounted in the upstairs room. Unofficially this little building was known as the "dog house." If something went seriously wrong with the furnace, workmen might have to run to the Pyrometer House for safety. They then said that the furnace had put them in the dog house. The downstairs room was a millwright shop, where furnace repairmen worked. It is now a shop for the Sloss blacksmith.



10

Boilers

Follow the wooden plank walkway between the railroad tracks to the Boilers, where water was boiled to generate steam. Steam was essential to the running of the furnaces. Steam powered the blowing engines and turbo-blowers that supplied the air blast; steam worked the Skip Hoist and the furnace top mechanism that charged raw materials; and steam drove the generator that produced electricity for the plant. The Boilers could burn coal and natural gas, but their primary fuel was the waste gas from the top of the blast furnace, the same fuel burned in the Hot Blast Stoves.

Walk to the end of the plank walkway, turn to the right and continue along the paved sidewalk. On your left you can see the No. 2 Furnace. Proceed to the end of the sidewalk. To your right, you will find the Power House.



11

Power House

Built in 1929, the Power House generated electricity for the plant. Steam from the Boilers spun a turbine that powered a generator to produce alternating current. The turbine and generator are on the upper level of the building, while the machines on the ground floor converted alternating current into direct current.

You have now completed your self-guided tour.