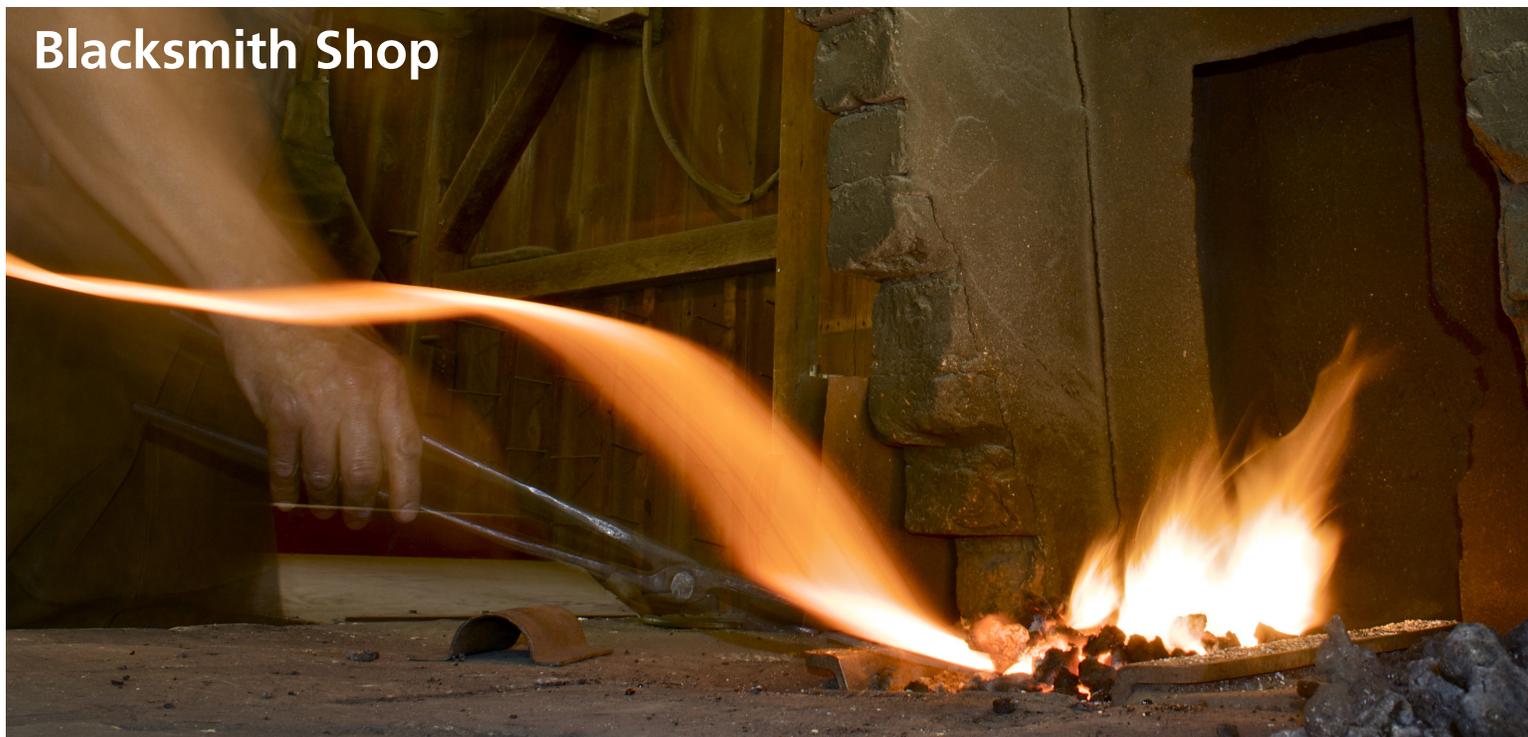




## Blacksmith Shop



This shop is a working smithy. The blacksmiths are trained in the same style as Herbert's father, Jesse Hoover. It is a style known as traditional blacksmithing, where the techniques, tools, and fuel sources are what have been used for centuries. The blacksmiths demonstrate the skill and hard work needed to turn ordinary iron into useful things.

### Physical & Mental Skill

Blacksmithing takes a lot of effort— pure physical strength, but more often mental strength. Blacksmiths spend years to mastering their art, traditionally serving as an apprentice before going into business on their own. A blacksmith must always be a good problem solver, sometimes using mathematics, chemistry, and even physics to produce a quality product.

Jesse Hoover possessed the necessary business skills to operate his own blacksmith and wagon repair shop. He sold his growing business in 1878 to open a new farm implement store on the corner of Main and First Streets.



A blacksmith demonstrates forging with a hammer and anvil.



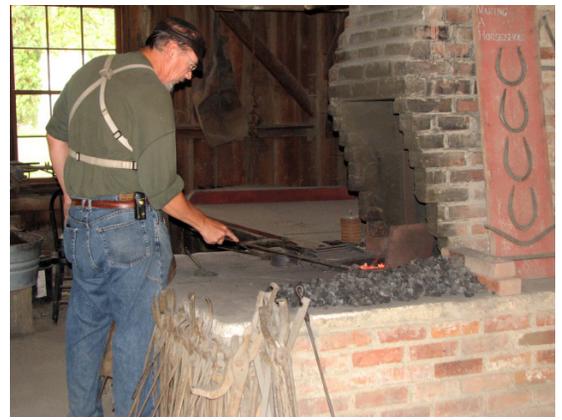
Built in 1957, the blacksmith shop at Herbert Hoover National Historic Site represents the kind of blacksmith

and wagon shops that were common in the 1870s.

## Heating the Metal

This shop, like Jesse Hoover's, runs on coal for fuel. Coal is stored in a bucket by the forge and in a large bin in the northwest corner of the shop.

Blacksmiths cook the coal until most of the impurities are burned off. The result is coke, a fuel that is almost entirely carbon allowing us to reach temperature of 3,000 to 4,000 degrees Fahrenheit at the core of the fire! Fire this hot can quickly get the metal up to welding temperatures at about 2,500 degrees.



The blacksmith heats metal to forging temperature, about 2000 degrees Fahrenheit.

Too Cold to Work 400 to 500° F	900° F	1300 to 1950° F	2000° F	Hot Enough to Weld 2100 to 2500° F
Dull Grey	Red	Orange	Yellow	Bright Yellow to White

## Shaping the Metal

Once the preferred shape has been created, the smith puts the still-hot iron into a quenching tank of cool water to solidify the steel and cool it to a safe touching temperature once again. When forging is complete the dinner triangle, tool, or other object is ready to be put into use. Have a look on the walls of the shop and you can see many of the objects our blacksmiths have created.

With a creative, problem solving mind and the right tools, a blacksmith can create almost any shape from metal. Many skilled blacksmiths today primarily work as artisans and show their creativity through shaping metal. Jesse Hoover used his own skills to provide a service to the community.

When Jesse Hoover was at work a working blacksmith shop was common. A blacksmith's work played a crucial role in everyday life of almost every citizen in a 1870s Iowa town. Today the trade lives on here at Herbert Hoover National Historic Site.



To make a dinner gong or triangle, the smith hammers a cylindrical piece of steel into a four-sided rod and brings it to a point.



The smith then creates the desired shape for the ends, then bend the straight rod into a triangle.

## Tools of a Blacksmith

Are there any tools in this blacksmith shop that look similar to something in your own home?

The main tool is the forge, the brick furnace and chimney where the blacksmith burns coal. The iconic tools of a blacksmith, the hammer and anvil, are just to the left of the forge. Every blacksmith shop will have differently sized and shaped hammers and at least one anvil.

The tongs around the forge to hold hot iron while working it into shape. Each pair of tongs has a specific purpose and is used depending on the shape of the metal or the angle the blacksmith is working on.

The bellows is another important tool. This smithy has a two-stage bellows just behind the forge. A simple pull on the handle hanging above it raises the top section of the bellows.

The collapsing weight of the bellows forces air through a pipe directly into the forge and in to the fire. This adds more oxygen, allowing the fire to reach hotter temperatures.



The anvil is one of the iconic tools of blacksmiths.