

# Phineas Gage:

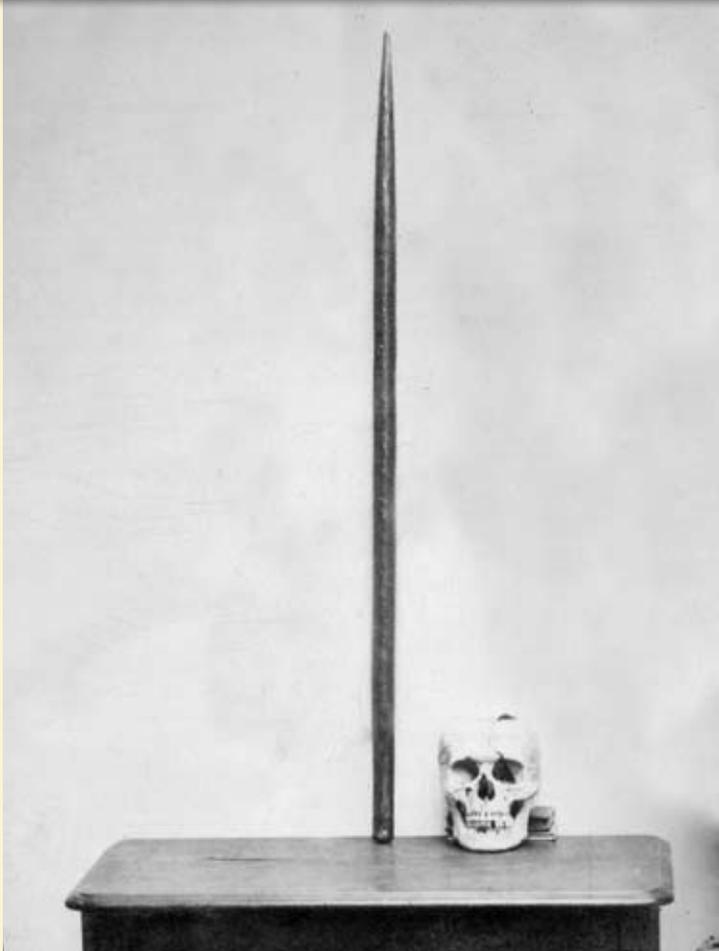
## The Man with a Hole in His Head

by John Parker



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# Phineas Gage: The Man with a Hole in His Head



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**EDUCATORS PUBLISHING SERVICE**  
Cambridge and Toronto

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# A Horrible Accident

Phineas Gage had no idea that something terrible was about to happen.

It started as an ordinary day. Gage was working on a railroad near Cavendish, Vermont. It was 4:30 in the afternoon on Wednesday, September 13, 1848.

On that day, Gage was blasting rock to clear the way for a railroad. He'd done it safely many times before. Gage was good at his job. However, this time something went very wrong.

Gage had a horrible accident. But it was no ordinary accident. It would prove to be one of the most amazing stories in medical history.

## **Blasting Through Rock**

Phineas Gage was twenty-five years old. He was a strong man of medium height. Gage was the leader of a group of men working on a railroad. The men were clearing the way for a track. To do this, they had to blast through a very hard rock called granite. Gage was a determined and very practical man. He was popular and organized. He was good at leading his team to work hard.

Gage followed these steps to blast through the granite:

1. Drill a hole into the rock.
2. Pour gunpowder into the hole and pack it down tight.
3. Place a fuse into the gunpowder in the hole.
4. Fill the hole with sand and pack it down tight.
5. Light the fuse.
6. **BOOM!** The rock explodes.



In the 1800s, railroads were built by men using picks and shovels.

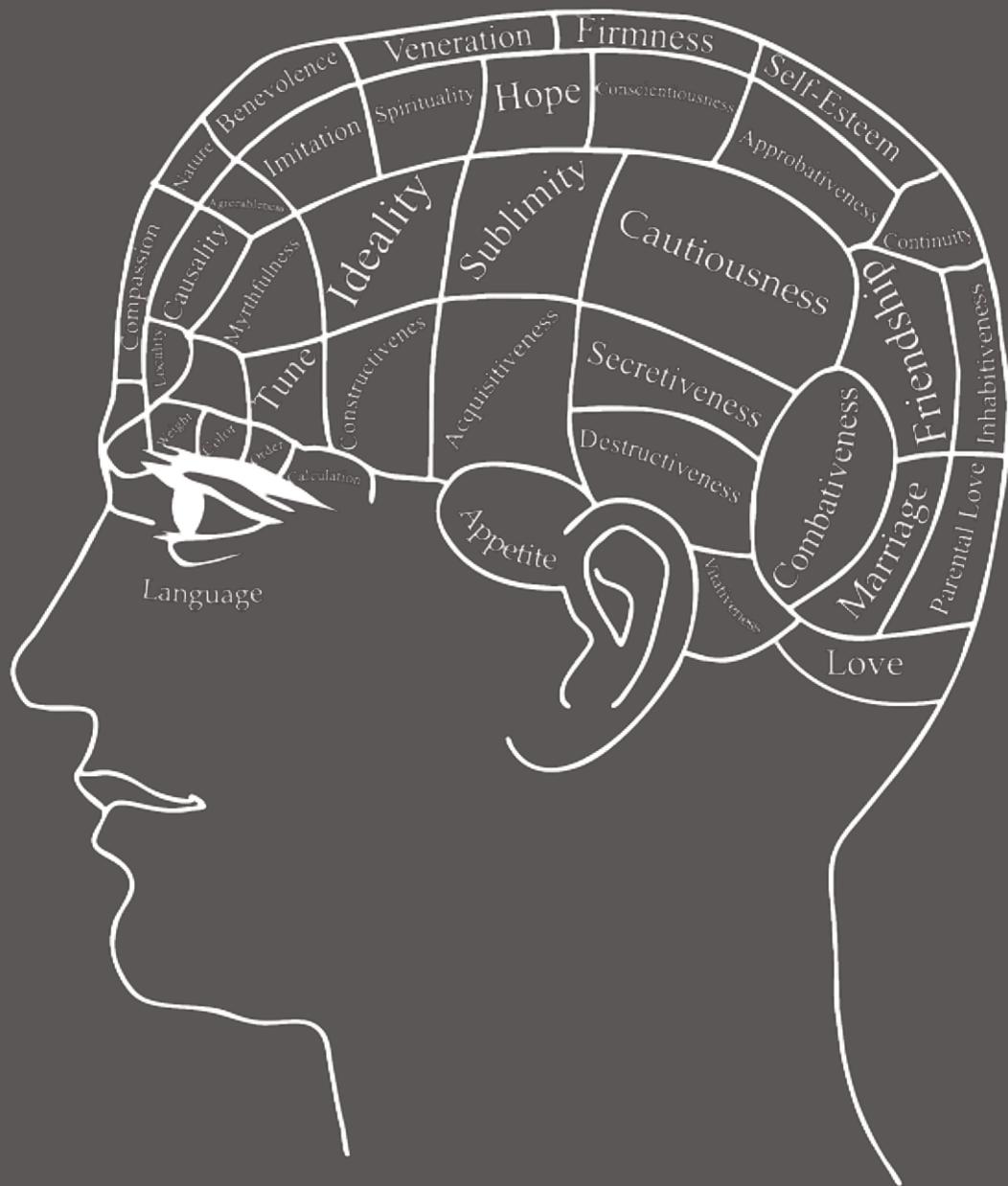
# How the Brain Works

## Early Theories

At the time of Gage's accident, there were two main theories about how the brain works. Dr. Bigelow believed in the Whole Brain Theory. This theory said that the brain acted as one whole unit. If one part of the brain was injured, another part took over. Professor Bigelow thought that Gage was living proof of the Whole Brain Theory. The tamping iron had damaged the front part of his brain. But since he was still walking and talking, it proved that the rest of the brain made up for this loss.

Another theory was phrenology (fren-OL-o-gee). This theory claimed that the brain was divided into thirty-seven areas. Each area controlled a certain ability or way of behaving. For example, one area controlled the ability to make friends. Another area controlled love, and another controlled musical ability.

Phrenologists thought that the tamping iron had destroyed only those areas that made Gage respectful and kind to people. The rest of his brain was still normal. They thought the change in Gage's personality proved that the brain was made up of separate parts, each with a special task.



A phrenologist's diagram of the thirty-seven areas of the brain

# Glossary

<b>bacteria</b>	extremely small living things, some of which can infect wounds
<b>brain stem</b>	the bottom part of the brain that is connected to the spinal cord
<b>cerebellum</b>	part of the brain at the back of the skull
<b>cortex</b>	the upper layer of the brain
<b>fuse</b>	a piece of string that is used in explosives
<b>granite</b>	a very hard rock, often gray in color
<b>gunpowder</b>	a mixture of chemicals that explodes when lit by a spark
<b>neuron</b>	a kind of cell that sends and receives messages between the brain and the rest of the body
<b>phrenology</b>	a theory from the 1800s that claimed that the brain was divided into thirty-seven areas, each controlling a certain ability or way of behaving
<b>seizure</b>	a sudden attack in the brain that can make a person's muscles twitch or spasm
<b>tumor</b>	a potentially harmful mass of extra tissue that grows in or on the body

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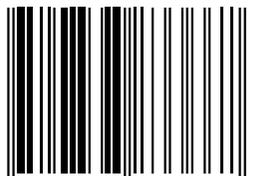
September 13, 1848, was a terrible day for Phineas Gage. He was working on a railroad, when BAM!—an explosion sent a three-foot iron rod crashing through his skull! Doctors were shocked to find that Gage was still alive. He could even talk! How was this possible? And could he live a normal life after his injury?

Read Gage's amazing story, and learn what his horrible accident has taught us about the human brain.



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