



## Phineas Gage: A Gruesome but True Story About Brain Science

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Phineas Gage was truly a man with a hole in his head. Phineas, a railroad construction foreman, was blasting rock near Cavendish, Vermont, in 1848 when a thirteen-pound iron rod was shot through his brain. Miraculously, he survived to live another eleven years and become a textbook case in brain science.

At the time, Phineas Gage seemed to completely recover from his accident. He could walk, talk, work, and travel, but he was changed. Gage "was no longer Gage," said his Vermont doctor, meaning that the old Phineas was dependable and well liked, and the new Phineas was crude and unpredictable.

His case astonished doctors in his day and still fascinates doctors today. What happened and what didn't happen inside the brain of Phineas Gage will tell you a lot about how your brain works and how you act human.

## Phineas Gage: A Gruesome but True Story About Brain Science Details

Date : Published November 1st 2004 by HMH Books for Young Readers

ISBN : 9780618494781

Author : John Fleischman

Format : Paperback 96 pages

Genre : Nonfiction, Science, History, Biography, Psychology, Childrens, Middle Grade

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# From Reader Review Phineas Gage: A Gruesome but True Story About Brain Science for online ebook

## Kim says

Name: Kim Deniker

APA Citation: Fleischman, J. (2002). *Phineas Gage: A Gruesome but True Story About Brain Science*. Boston: Houghton Mifflin.

Genre: Biography, Nonfiction

Awards won: ALA Notable Children's Books, 2003; New York Public Library Books for the Teen Age, 2004; Book Report, 11/1/2002; School Library Journal, 3/1/2002; Booklist, 3/1/2002; Voice of Youth Advocates (VOYA), 6/1/2002; Bulletin of the Center for Children's Books starred, 5/1/2002; Wilson's Children, 10/1/2010; Five Owls, 6/20/2003; Wilson's Junior High School, 1/9/2010; Wilson Junior High School, 10/1/2007; Horn Book, 5/1/2002; and Kirkus Review starred, 2/15/2002.

Format: Print

Selection Process: This is a book that has received many literary awards including ALA (2003) best book for young adults in 2003. Wilmington Area seventh grade curriculum requires this book as a part of their biography unit. Follett indicates the reading level as 7.6 with the interest grade level of 5-8.

Review: Gr. 7-10. *Phineas Gage: A Gruesome but True Story about Brain Science* takes place in Cavendish, Vermont, and begins with Phineas Gage who is a twenty-six year old blasting expert that worked for the railroad in 1848. On the fateful September 13th day, there was a freak accident that sent a three foot, thirteen and a half pound spear like tamper through Phineas's cheekbone and out the top of his skull. John Fleischman shares this man's biography in present tense and explains Phineas's survival and elementary brain science. Phineas miraculously never loses consciousness and received nineteenth century medical care from Dr. John Martin Harlow. Dr. Harlow records Phineas's life for eleven years after the incident through medical exams and communications with Phineas's family which showed a marked change in his personality, social skills, and physical abilities due to what he felt was brain injury. The nineteenth century produced ideas on how the brain worked and how the different parts of the brain controlled different parts of the body, personality, and social skills. The story continues with how medical practice during this time period discovered cells, the nerve network, "germs" or bacteria known as microbiology, seizure disorders, concussions and other brain injuries, which forever changed how medicine is practiced and beliefs concerning the brain. Dr. Harlow presents his astounding medical findings to skeptical Harvard and Boston Medical School doctors and interns where they study Phineas until he leaves and joins up with P.T. Barnum's American Museum on Broadway in New York City. The story is hard to follow at times because it spans many decades. Phineas's skull and rod are on display at Harvard University for continued study. Historical photographs with descriptive captions are used throughout including a modern computer generated picture of Phineas skull showing the passageway of the rod through his skull. Diagrams and drawings depict how the brain works. Pen and watercolor drawings along with prints aid in the clarification of this story. ALA Book Picks (2003) chose this title as one of the best books for young adults in 2003 and states that "He (Fleischman) avoids sensationalizing by letting the events themselves carry the impact. A glossary, resource listing, and index are also included. Recommended.

ALA Book Picks 2003. (2003). School Library Journal, 49(3), 62-70.

Phineas Gage: A Gruesome but True Story About Brain Science

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### **Patrice Sartor says**

GENRE: Non-fiction, biography, brain anatomy, science.

SUMMARY: Phineas Gage suffered a horrendous accident in 1848 when a tamping iron exploded through his skull. Amazingly, Phineas walked away from the accident, and lived for another eleven years. He was a changed man, however. His personality became harsher and less socially adept. He became prone to swearing and shortness of temper. After the incident Phineas was able to interact well with children and horses, and he worked with horses for many years.

EVALUATION: I remember seeing a video about Phineas Gage when I was in junior high, and how it fascinated me. Years later in college, as a psychology major, I studied Gage again, with more of a focus on his changed personality and brain function. This book is in-depth, and provides much information about Gage that I did not previously know.

WHY I WOULD INCLUDE IT: Phineas Gage's story is still a medical marvel, and still just as fascinating as it ever was. Tweens who enjoy gruesome true stories will be both entertained and educated, as the book offers a fair bit of discussion about the anatomy of the brain, including the different schools of thoughts about brain anatomy that were in effect during Gage's day.

READER'S ANNOTATION: An in-depth look at the accident that forever changed Phineas Gage, and gave the medical world new insight into how the brain works.

#### **ITEMS WITH SIMILAR APPEAL:**

- An American Plague: The True and Terrifying Story of the Yellow Fever Epidemic of 1793 by Jim Murphy.
- The Absolutely True Diary of a Part-Time Indian by Sherman Alexie.
- Shipwreck at the Bottom of the World: The Extraordinary True Story of Shackleton and the Endurance by Jennifer Armstrong.
- The Great Brain Book: An Inside Look at the Inside of Your Head by HP Newquist.
- Grossology by Sylvia Branzei and Jack Keely.

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### **Karla says**

I'd never heard of Phineas Gage until I read The New England Grimpendium. Even though he is a hella famous local boy and trailblazer-by-accident in the study of neuroscience, he wasn't trotted out in grade school classrooms to gross out the kids while teaching them important stuff at the same time. Which boggles the mind because it's a highly effective way to instruct. C'mon, teachers. GET WITH THE PROGRAM. Does America want more brain scientists? Then teach them about Phineas Gage when they're 10. Voilà.

On September 13, 1848, while blasting through granite bedrock in order to lay railroad tracks, Phineas Gage - foreman on the job - made an error with the explosive and his 3 1/2 foot tamping rod shot through his cheek, behind one eye and up through his frontal lobe.

It landed 30 feet away, covered with blood and brains. Miraculously, he was able to get up, walk, talk, joke, and recount the whole affair lucidly. He was treated by a local doctor to the best of the man's ability and fought off a raging staph infection, which was treated by bleedings, emetics, and purgatives. Poor Phineas. The fact he had a hole in his skull no doubt saved him from dying from the massive concussion.

He recovered within months, but he was never the same again. The formerly reliable and friendly young guy became shiftless, restless, rude, and unpredictable. It was like he lost his inhibitions and filter.

*He swore in front of ladies. \*gasp\**

He only seemed to get along with children and animals, and he eventually went to Chile to drive stagecoach (though there is still no solid evidence to back up this bit of lore) and then died in San Francisco after suffering a long series of epileptic seizures at the age of 36 in 1860.

*I will never not re-post this image.*

*I believe that picture was taken quite a while after the accident. He's fleshed out and looks more irascible, as if his personality change has taken a physical toll.*

The book strikes a balance between gleeful gore and basic introductions to the various fields of science that touch on the Gage case. It's been a long while since I was in a biology classroom, so I found those sections as interesting as the biographical details about Gage himself. But by the end, I was wishing it was longer, more detailed. There's a full-length popular history that could be written around this event, if it's possible to make neuroscience more accessible in layman's terms.

Written for middle schoolers, but suitable for anyone with an interest in strange-but-true stories.

*Most visited exhibit in the museum, for good reason.*

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### **Mary says**

I really enjoyed this book and will have my children read it, but we will be discussing one aspect of it for sure.

The author said that "Humans have always argued about what makes us human." Then goes on to say, "The case of Phineas Gage suggests that we are human because our frontal lobes are set up so we can get along with other humans." I beg to differ.

Our frontal lobes are not what makes us human. Would we say a brain injured dog is something other than a dog? A brain injured horse is not a horse? A human is a human from conception to death because we are

humans. Brain injury or abnormality does not make us any less human. No other deformity makes us any less human. We are created in the image of God. Every single human being is. That is why we need to treat every one with respect and give them the dignity that is due them. Any of us could be brain injured in an instant during our lives. Our humanity needs to be respected and protected at any age.

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### **Heather Carreiro says**

Love teaching this in middle school

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### **\* Crystal \* says**

3 stars. What an amazing story. It's amazing he survived. It's short but a great read. I enjoyed.

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### **Burnie Lancaster says**

Knowing absolutely nothin about neuroscience, I found this fascinating and right at my level! Since there is so little known about Phineas Gage's life, I can't imagine an adult version being any better.

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### **Brianna Preston says**

A short but engaging read in simple terms about what we've learned over the years about the brain. How did Phineas Gage survive, and what altered him so dramatically?

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### **Barb says**

I've always been fascinated by the story of Phineas Gage. I've had the book 'The Only Living Man with a Hole in His Head' by Todd Colby Pliss on my list of books to read for a while now. So, this book caught my eye. It's so short it was no trouble to work it into the reading rotation.

The story of Phineas Gage's brain injury is fascinating stuff, an accidental discharge of explosives sent a three foot long iron tamping rod through the man's skull. Minutes later he walked on his own into town to get medical attention and lived for over a decade with a hole in his head.

Everything about this story was interesting. I love how present day neurologist used state of the art medical technology to analyze his skull and narrow down the potential paths the tamping rod could have taken through Gage's brain.

The brain science of the time is given as a context to what the doctors would have known and what resources they would have had available to treat the injury. At the time of his injury doctors were unaware of the existence of germs!

All of the brain science and anatomy is given in very simple, understandable terms. This story is accessible to any level reader and I would recommend it to anyone who's ever heard of Phineas Gage. I could see this being a great book for teachers at the middle or high school level. It's just a crazy interesting story.

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### **Yoo Yoo says**

This book is a nonfiction book about a man who had a big accident which affected his brain. If you don't like nonfiction books, you should start with this book because it is interesting and informational at the same time. I would highly recommend this book to really everybody!

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### **Lindsey Jones says**

History, science, and psychology collide in this short, engaging read! The story of Phineas Gage is fascinating: not only the initial accident, but also the aftermath of the accident on Phineas's life and the developments in brain science and medicine. Fleischman does a great job of interweaving Gage's story with scientific explanations and historical medical developments. This writing style will enable young readers to make sense of technical content due to relevance. The inclusion of images are also crucial in making meaning of this text, and this book certainly delivers some gruesome images! What middle schooler wouldn't want to read this book? It would be my hopes that Gage's accident draws them in, but what they learn about brain science intrigues them and sets them on a path of inquiry. I would highly recommend this book for classroom use, particularly at the middle school level.

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### **????? ??? ??? says**

“If you talk about hard core neurology and the relationship between structural damage to the brain and particular changes in behavior, this is ground zero.”

Unless you're a neuroscientist, you've probably never heard of Phineas Gage (I hadn't until a few days ago). He was born in 1823, and he gained a remarkable level of fame during his lifetime. He's still famous in certain circles – not for having done anything particularly interesting or impressive, but for having something done to him.

Specifically, having a tamping iron (a long, metal rod) fly through his skull during an explosion.

Gage was 25 years old and working for the railroad, planting explosives in order to clear space for new tracks, when one of the charges went off unexpectedly. The metal tool that he used to pack sand around the explosives went through his head, starting at his left cheek and passing through his eye socket before emerging through the top of his skull.

Phineas remarkably survived the incident with all of his mental faculties intact, but even that's not why his name is still commonly mentioned in neurology circles today. No. Gage's fame began to spread not because of the ways in which he was the same after the accident, but because of the ways he was different.

According to his physician at the time, Gage's personality was greatly altered after the iron was removed:

He is fitful, irreverent, indulging at times in the grossest profanity, which was not previously his custom.

Gage's incident was the first definitive proof that the key to our personalities lay in our physical brains and not in some harder to define realm. Not only that, but because his injuries were to one specific area of the brain, there seemed to be an obvious connection between it and personality.

The fascination with Gage's case didn't die out with the people and science of his time. Researchers in the 40s, 80s, and then again in the 90s have all mapped the tamping iron's trajectory in an attempt to understand just how the objects destructive path affected Gage's personality.

Gage's case is still relevant today in more ways than one (and for reasons other than morbid fascination, too). For one, people do still sustain serious injuries of this kind. For another, Gage lived a dozen years after his incident and recovered from the personality changes within two to three years. He held a skilled job during that time, as well.

He died when he was 36 from an epileptic seizure that was almost surely related to his injury. His skull is on display at the Warren Anatomical Museum in Boston, MA

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## **Joe says**

In order to provide this book with a proper evaluation, my reciprocal ages must weigh in.

### Phineas Gage: A Gruesome but True Story About Brain Science

A review by Joe Prince, Age 31

Grisly. Stomach-churning. Disgusting. These are adjectives that aptly describe the first chapter - nay! **paragraphs** - of John Fleischman's brief but explosive account of the freak accident that inspired deeper study of brain science.

Compelling. Engaging. Witty. These are adjectives that aptly describe the *entire* book. Fleischman deftly weaves scientific study and complicated medical explanations with sharp storytelling to create possibly the most compulsively readable piece of young adult non-fiction. Furthermore, his refusal to shy away from gruesome detail will attract even the most reluctant reader, male or female.

Most amusing, though, is the mixture of somber and irreverent observations sprinkled throughout the narrative. Fleischman treats scientific matter seriously, but often reflects on the accident with a charming tongue-in-cheek manner that will be enormously appealing to teenagers. This quality is best evident in his explanation of phrenology: "*The Organ of Veneration [respect:] and The Organ of Benevolence [kindness:]*, for example, are supposed to be just above the left eyebrow. Remember where Phineas was hit with the iron? Stay tuned." Sure enough, the accident turns Gage into a real son-of-a-gun.

Coupled with the archival photographs and disturbing illustrations, Gage's tale is one to be continually revisited with both reverence and jaw-dropping awe.

(4.5 out of 5 stars)

#### Phineas Gage: A Gruesome but True Story About Brain Science

A review by Joe Prince, Age 13

Good God, this is AWESOME!!

(5 out of 5 stars)

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#### **Dorian Becerra says**

This book is about Phineas Gage a survivor of a large Iron rod going through his head. This is his story of how this affected brain science forever and his. I liked this book because I've been amazed of how he could survive this accident and I wanted to know more about it. I would recommend this book to people who like brain science.

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#### **Lars Guthrie says**

John Fleischman opens 'Phineas Gage' at full tilt, September 13, 1848, 'a minute or two away' from an accident that can only be described as freakish. Gage was working with gunpowder, blasting through solid rock as the foreman of a railroad construction gang in Vermont.

The tool of his trade was a tamping iron, three and a half feet long, a little less than two inches round, one end pointed like a spear to set a fuse, the blunt end used to tamp down earth over the gunpowder.

Something went wrong. The sharp end of the iron spear shot into Gage's left cheek. Its entire length rocketed through the front of his brain and burst out of the top of his skull, clanking down thirty feet away.

Gage lived. During the half hour it took for a doctor to arrive, he sat down on the front porch of the hotel where he was boarding and talked about what had just happened.

Was he okay? Not exactly. Phineas Gage was not the same man. He could walk and talk, but the even-tempered supervisor had now lost the ability to match his behavior to the situation at hand. He had no social skills.

Gage's misfortune occurred as the medical establishment was on the verge of looking at the brain in an utterly new way. A decade and a half later, a surgeon in Paris showed, by conducting autopsies on stroke victims, that there was a specific region of the brain devoted to speech production. That place, located just above the left ear, is still known as Broca's area, after the French doctor.

It has taken another century plus for neuroscientists, equipped with modern technologies such as magnetic resonance imaging and electroencephalography, to really begin to map out the brain. Today, when lay people

are knowledgeable about ‘executive function,’ it’s far easier for us to understand how losing a chunk of your frontal lobe would affect your judgment, your planning, and the way you get along with others.

In the mid-nineteenth century, phrenologists were feeling the bumps and dents on people’s heads to determine cognitive strengths and weaknesses.

What doctors of the time were able to do was dig up poor old Phineas and preserve his skull, as well as the tamping iron that remained a constant companion until his death in 1860, at the age of thirty-six. This ensured that Gage would remain a subject of fascination, and become the protagonist of Fleischman’s unusual and compelling children’s book.

The only thing that bugged me about Fleischman’s otherwise riveting narration was his insistence on using present tense throughout the book. It worked for me in the initial passage, so forceful in its immediacy, but got hokier as he went through several time changes. But that never bothered me enough to lose interest. What a story, and thanks to Elizabeth Bird for bringing it to my attention.

Many of us are attracted, perhaps somewhat reluctantly, to the macabre and grotesque, including middle schoolers. Here’s a nifty book that plays into that draw, and then introduces readers to the exciting work being done in brain science.

Recommended for fifth graders on up.

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