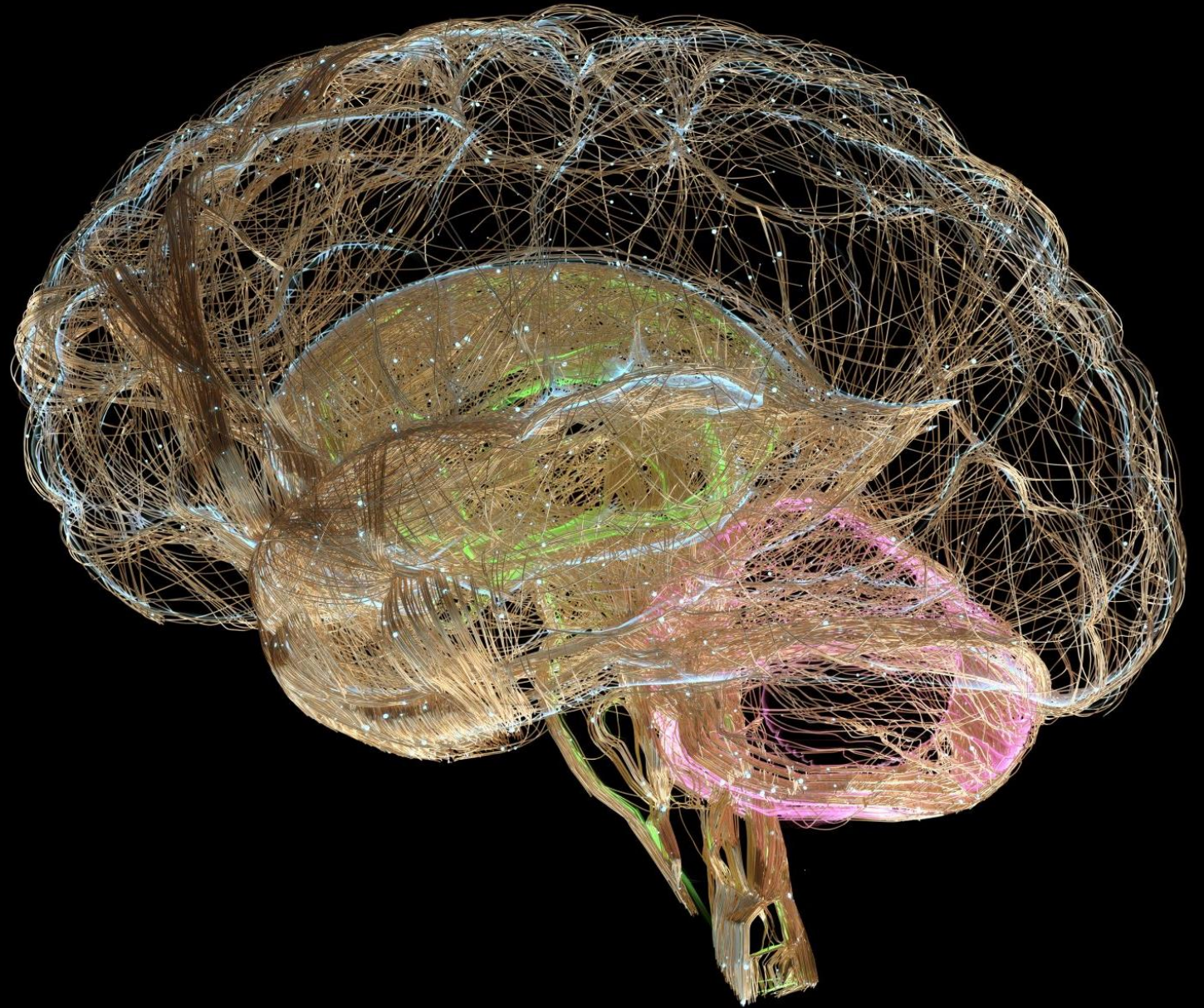


# EFFECTS OF BRAIN INJURY ON MAN'S FUNCTIONING

Kamila Murdza



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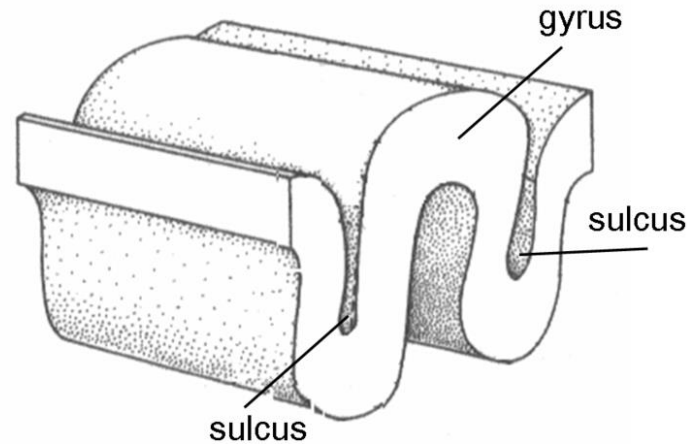
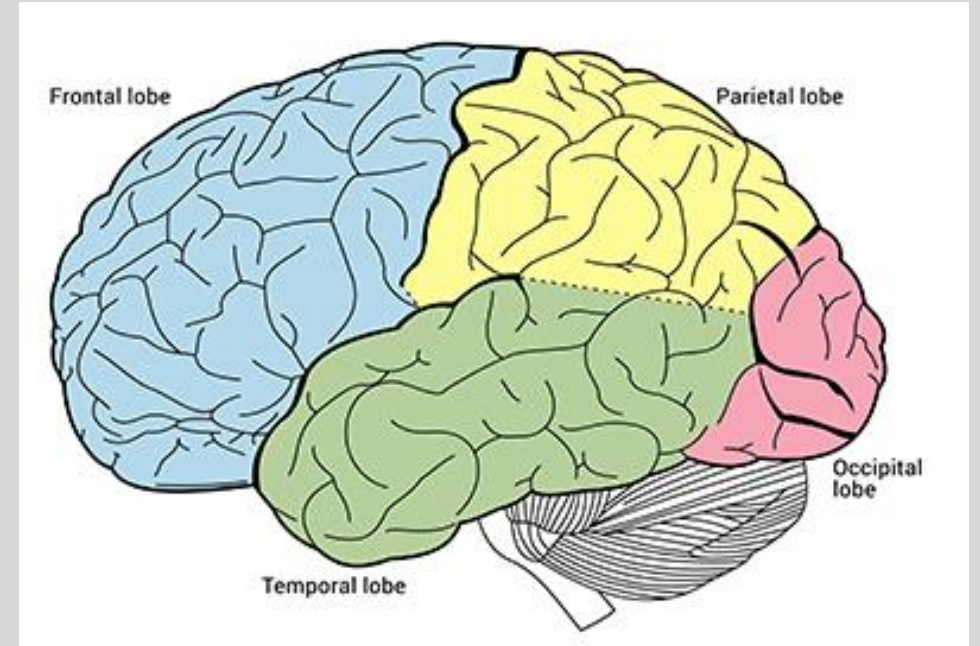
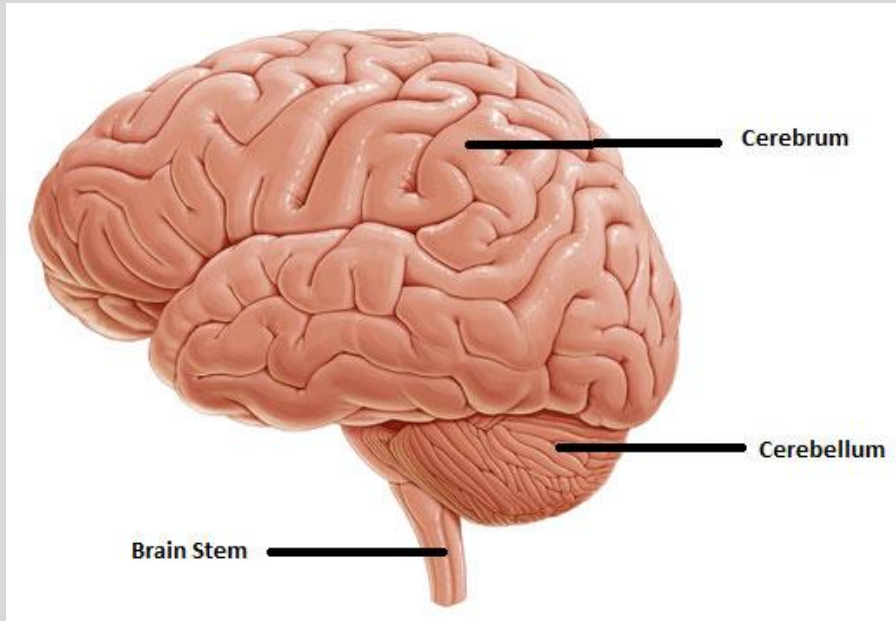
## Images



# INTRODUCTION



# The brain's structure





# Frontal lobe

Cognitive skills

Speech and language production

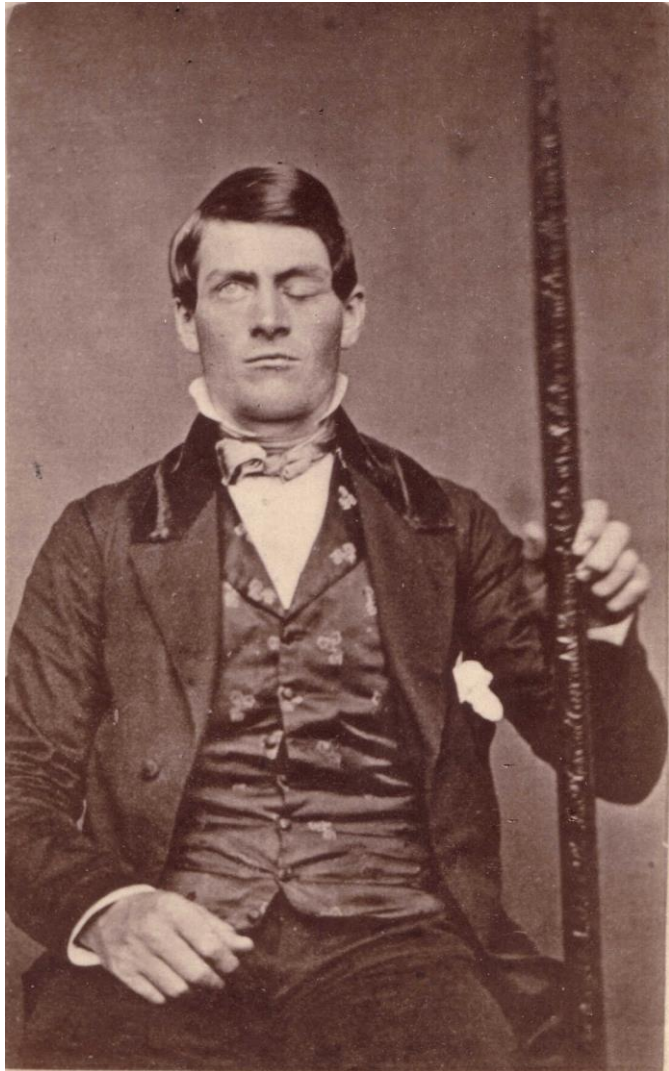
Comparing objects

Understanding and reacting to the feelings of others

Forming personality

Reward-seeking behavior

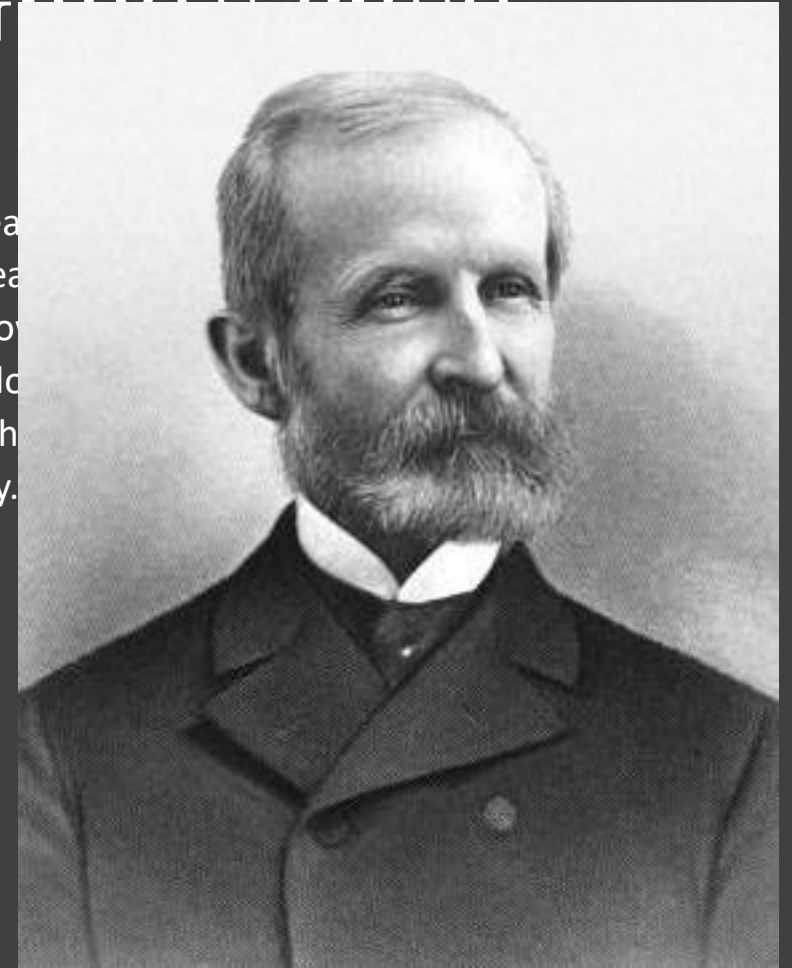
Motivation

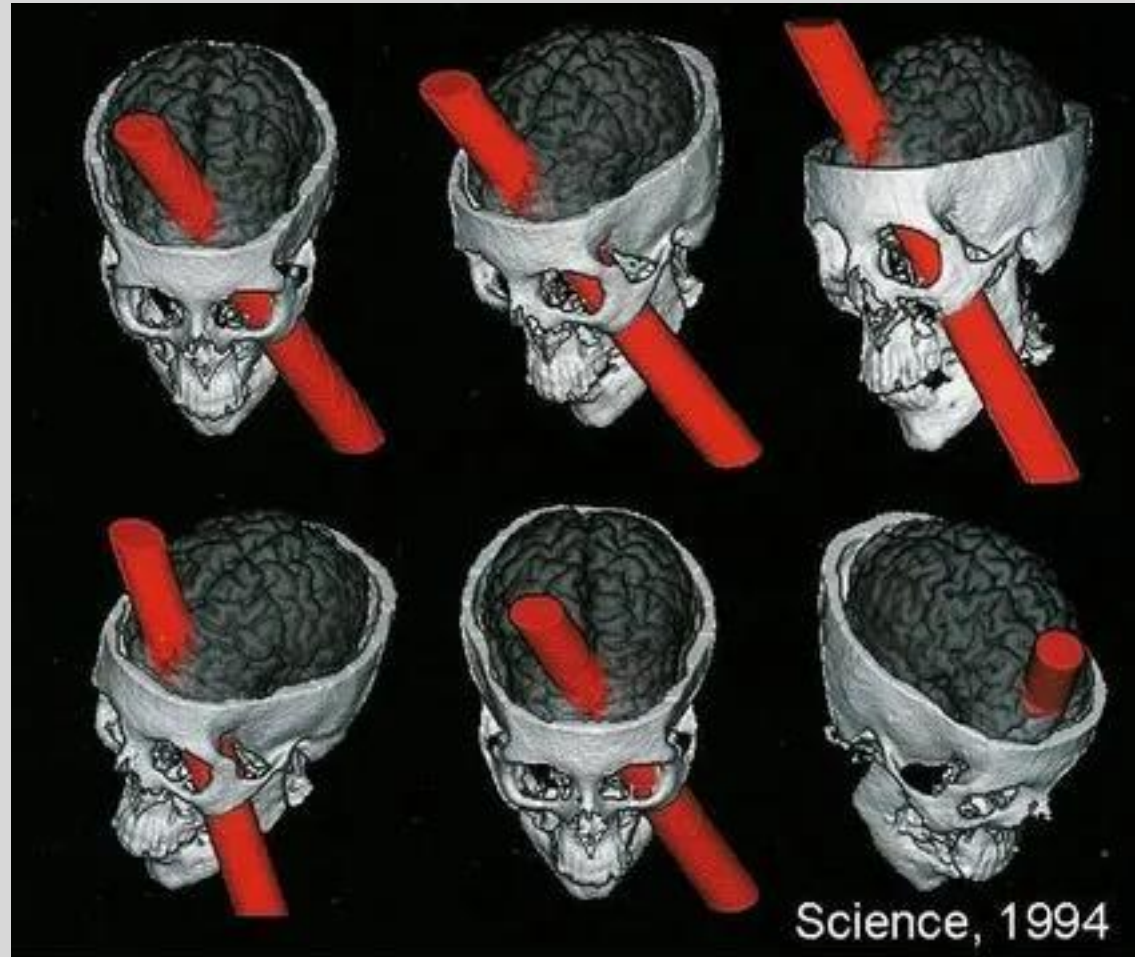


# Phineas Gage's case

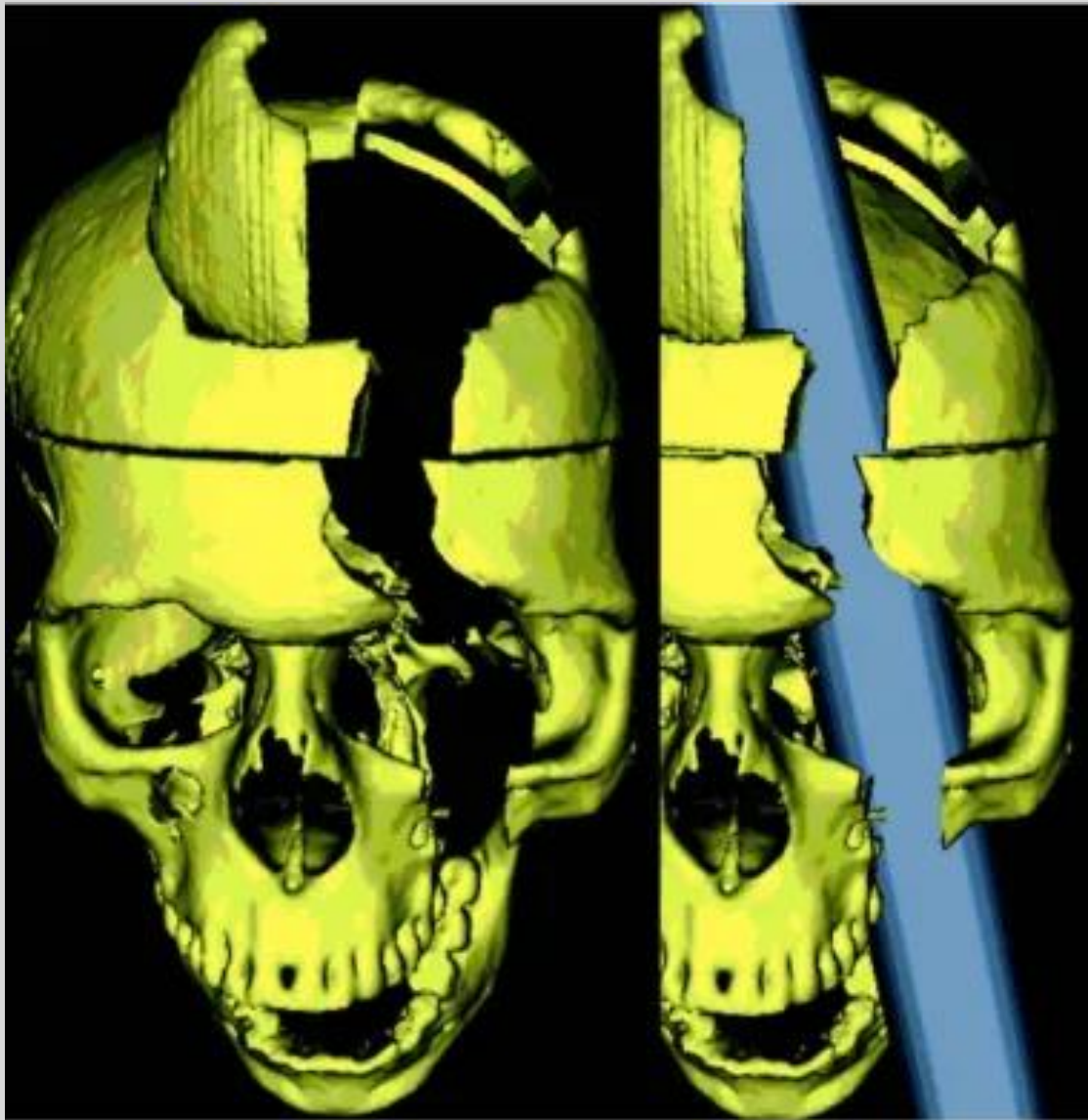
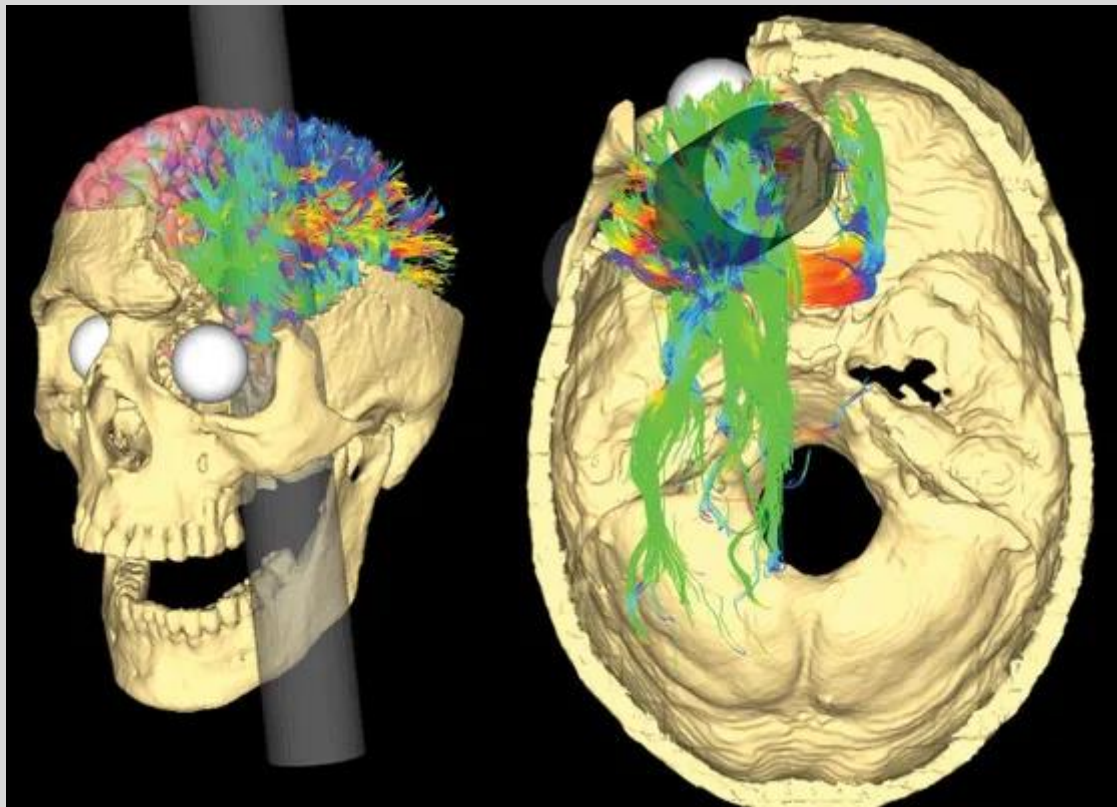
On September 13 in 1848, 25-year-old Gage was part of a crew preparing a railroad bed near Lowell, Massachusetts. While using a tamping rod to pack explosive powder in the ground, the rod detonated, sending the 43-inch long rod flying. The rod penetrated Gage's left cheek and passed through his skull before landing 80 feet away.

Dr. John Martyn Harlow











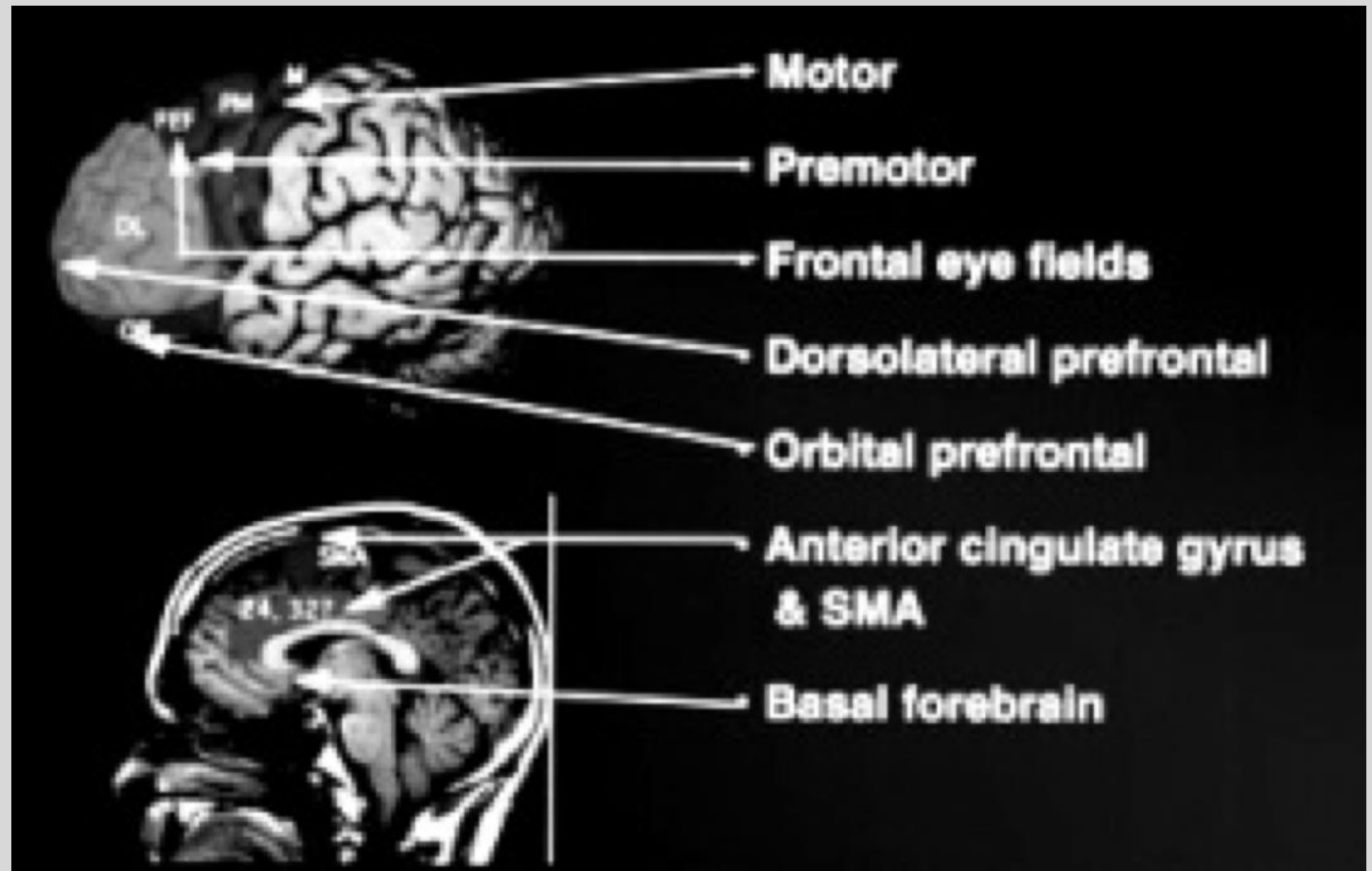
# Influence of Phineas Gage

- Neuroscientists have a better understanding today about the function of the frontal cortex. They understand that the frontal cortex is associated with functions of language, decision making, intelligence, and reasoning. Gage's case became one of the first pieces of evidence suggesting that the frontal lobe was directly involved in personality.



# Frontal lobe – damage

- Primary motor cortex
  - Weakness and paralysis
- Premotor cortex
  - Apraxia
- Dorsolateral prefrontal cortex
  - Short-term memory loss/amnesia
  - Inflexibility and stubbornness
  - Perseveration



# Frontal lobes damage – treatment

- Occupational therapy
- Cognitive therapy





# Parietal lobe

Somatosensory cortex

Processing sensory input

Pain

Touch

Proprioception

Vibration

# Parietal lobe – damage

- Sensory deficit
- Problems with localization
- Left side neglect
- Gerstmann syndrome
  - Left-right confusion
  - Agraphia
  - Mathematical difficulties
  - Finger agnosia



Normal view



Neglect and Anosognosia

# Gerstmann syndrome – video





# Parietal lobes damage – treatment

- Sensory retraining exercises
- Visual scanning training



# Temporal lobe

Understanding language

Memory acquisition

Face and object recognition

Perception

Processing auditory information

# Temporal lobes – damage

- Prosopagnosia
- Visual agnosia
- Wernicke's aphasia
- Hearing difficulties
- Memory loss





# Temporal lobes damage – treatment

- Speech therapy
- Occupational therapy



# Occipital lobe

Color determination

Facial recognition

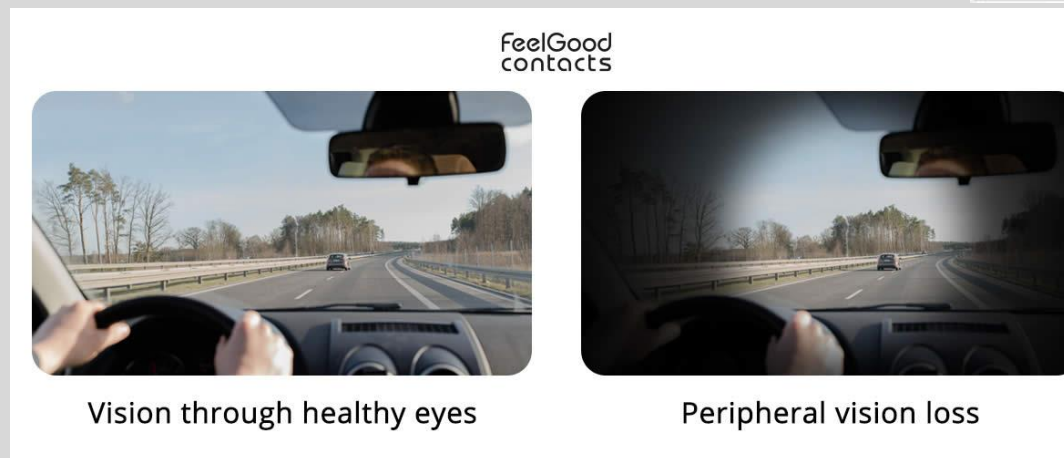
Depth perception

Visuospatial processing

Memory formation

# Occipital lobes – damage

- Partial blindness
  - Hemianopsia
  - Quadrantanopsia
  - Peripheral vision loss
  - Central vision loss
- Word blindness
- Color agnosia
- Akinetopsia
- Balint's syndrome





# Akinetopsia – video



# Balint's syndrome – video



# Occipital lobes damage – treatment

- Eye exercises
- Scanning therapy

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