Unit Two: Biopsychology Domain
Chapter 2: The Biological Perspective
Module 5: The Brain
Module 6: Heredity, Environment and Adaptation
Phineas Gage
1848

Chapter 2: Biopsychological Domain
And you think you had a bad day at work?

Psychologists better understood the specialized functions of the brain, specifically the importance of the frontal association area.
Chapter 2: Biopsychological Domain
"We've given you a brain scan and we can't find anything."
How is the brain organized like a corporate office building?
Magnetic Resonance Imaging (MRI) or (fMRI)
a “movie” of changes

“see through brains”
Lobotomy: severing almost all the nerve tracts connecting the prefrontal lobes with the rest of the brain. a method used to pacify aggressive mental patients.
**Stroop Effect:** exercise illustrating conflicting mental exercises ("interference")
"left-handed people are the only ones in their right mind..."
THE BRAIN: GENDER DIFFERENCES

Avg Brain Weight: Adult males 10% heavier; heads 2% bigger
BUT no difference when comparing weight and size of brain with size of body

Corpus Callosum: no difference

Hypothalumus (preoptic area involved in mating behavior):

difference: 2.2 larger – 2x cells in males
BLOOM COUNTY
by Berke Breathed

THEY SAY THAT ONE'S CAPACITY FOR LOGIC AND REASON COMES FROM THE LEFT SIDE OF THE BRAIN...

AND THAT ONE'S POTENTIAL FOR EMOTIONS AND FEELINGS COME FROM THE RIGHT SIDE.

NOW CONSIDERING MY OWN MARKEDLY LOPSIDED PERSONALITY...

I'M SURPRISED I JUST DON'T GO FLOPPIN' OVER TO THE RIGHT FROM ALL THE WEIGHT.

Frank and Ernest

AL'S BREAKFAST DINER

NO CONVERSATION, PLEASE -- THE LEFT SIDE OF MY BRAIN DOESN'T KICK IN TILL MY SECOND CUP.
Split-Brain Studies: Cerebral Lateralization

Corpus Callosum:
厚带状的神经纤维束，允许左右半球的沟通
Innocent and carefree, Stuart's left hand didn't know what the right was doing.
"This would be a good time to talk about heredity."
HEREDITY v. ENVIRONMENT

How is the nature v. nurture issue like a car?

Nature:
DNA influence of inherited characteristics that influence personality, physical and intellectual growth.

Nuture:
Environment’s influence on personality that influence personality, physical and intellectual growth.

DNA determines outline of our lives

External forces can have significant impact over who we become: peers, parents, cultural expectations
Genes

The basic unit of heredity

A cell
Chromosomes - 23 pairs
The chromosome is made up of genes

The genes consist of DNA which is made up of four chemical letters

Chapter 2: Biopsychological Domain
HEREDITY

Dominant vs. Recessive Genes

Actively controls expression of a trait

Only influences expression of trait when paired with identical gene

Predisposition

genetic tendency/possibility
## The Interaction of Heredity and Environmental Factors on Human Behavior: Twin Studies

### Monozygotic Twins

Even those *raised apart* had similar:

- basic temperaments
- occupational interests
- hobbies
- art and music preferences

### Dizygotic Twins

At *similar ages*:

- fears and nightmares
- bedwetting
- bouts of depression

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The Jim Twins
Adopted children have more in common with biological parents than adoptive parents.
The Interaction of Heredity and Environmental Factors on Human Behavior: Evolutionary Psychology

**Natural Selection:** Inherited characteristics that give a survival advantage are more likely to be passed on to future generations.