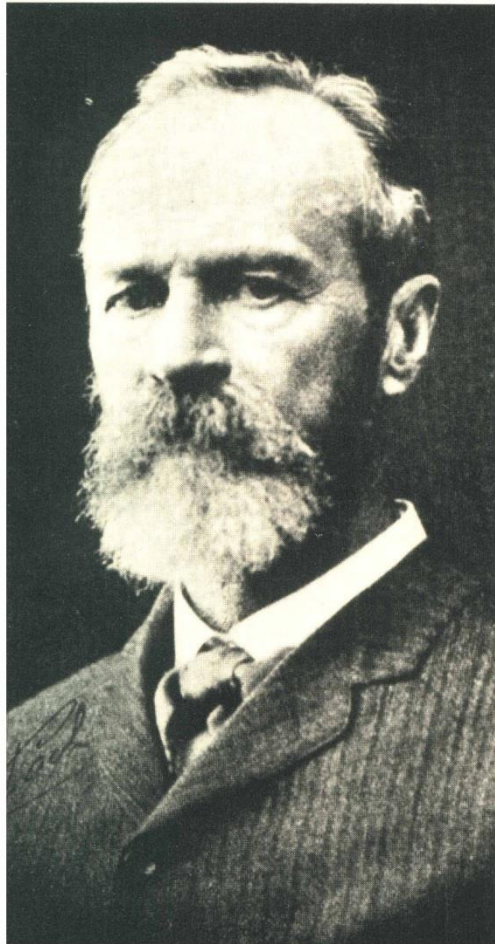


# The Nature and Scope of Psychology

## Lecture 1

# William James (1842-1910)



R.H. Wozniak

“Psychology is  
the science of mental life”

*Principles of Psychology*  
(1890)

# A Short List of Mental Functions

Immanuel Kant (1724-1804)

“There are three absolutely irreducible  
faculties of mind:  
knowledge, feeling, and desire.”

*Critique of Judgment* (1790)

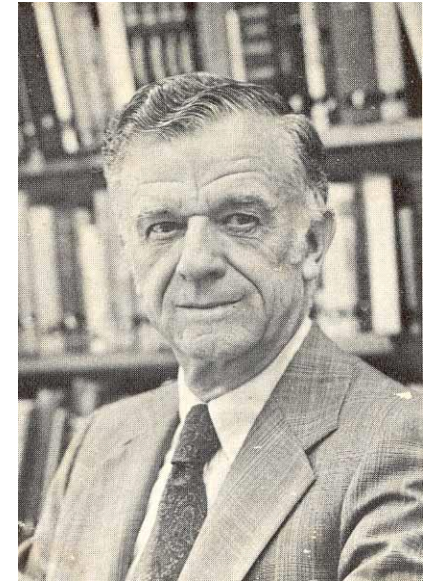


R.H. Wozniak

# The Trilogy of Mind

Hilgard (1980)

- **Cognition**
  - Knowledge and Beliefs
- **Emotion**
  - Affect, Moods, Feelings
- **Motivation**
  - Drives, Needs, Desires, Goals, Purposes



E.R. Hilgard

# The Scope of Psychology

- **Basic Processes**
  - How the Mind Works
- **Development**
  - Origins of Mind
- **Individual Differences**
  - Individual Organization of Mental Life
- **Pathology**
  - Disorders of Mind and Behavior
- **Applications of Basic Knowledge**
  - Education, Psychotherapy, Workplace

# Psychology as a Behavioral Science

- Anthropology
- Biology
- Economics
- History
- Political Science
- **Psychology**
- Sociology

How Individuals,  
Human or Animal,  
Interact with Each Other  
and the World in which They Live

*What is a Psychological  
Explanation of Behavior?*

# The Doctrine of Mentalism

Doctrine of Mental Causation

Mental States are to Action  
as Cause to Effect

Mental States : Action :: Cause : Effect

# Example Behavior:

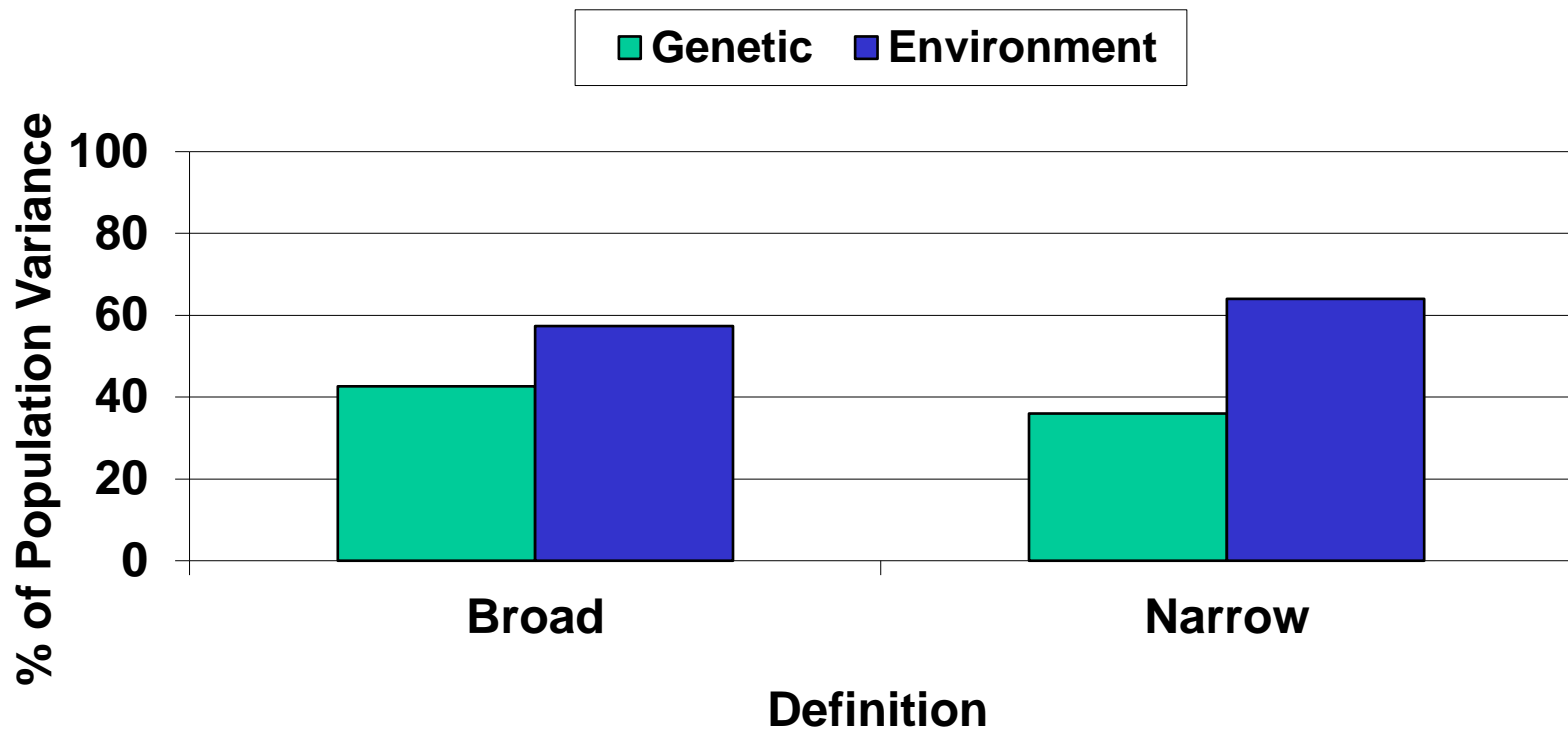
## *A Person Commits Suicide*

- Cognitive Explanation
  - Knowledge, Beliefs
    - **He *Believed* He Was Worthless**
- Emotional Explanation
  - Affects, Moods, Feelings
    - **He *Felt* Depressed**
- Motivational Explanation
  - Drives, Needs, Goals
    - **He No Longer *Wanted* to Live**



# Genetic Influences on Suicide

Voracek & Loibl (2007)



# Example Behavior:

## *A Person Commits Suicide*

- Japanese *Kamikaze* Pilots
  - World War II
  
- Jonestown Massacre
  - People's Temple, 1978



# Levels of Explanation

Sociocultural



Psychological



Biophysical

# Psychology as a Social Science

## The Individual in Society

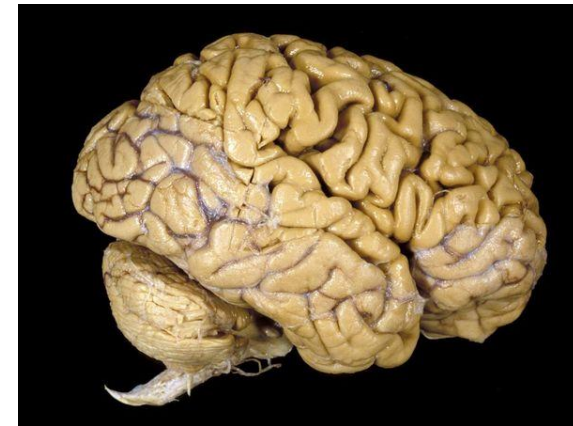
- Social Interaction
  - Cooperation, Competition
- Social Influence
  - Individuals, Groups
- Social Cognition
- Personality
  - Individual Differences
  - Organization of Individual Lives

Mind in the Abstract  
vs.  
Mind in Action

# Psychology as a Biological Science

## The Brain is the Physical Basis of the Mind

- Neuroscience
  - Neuroanatomy, Neurophysiology
- Other Bodily Systems
  - Endocrine System
  - Immune System
- Molecular and Cellular Biology
- Genetics
- Evolutionary Biology
- Ecology



*National Geographic*

# Psychology as a Physical Science

## The Brain is an Electrochemical System

- Psychophysics
  - Physical Stimuli vs. Psychological State
- Brain Imaging
  - Positron Emission Tomography
  - Magnetic Resonance Imaging
  - Magnetoencephalography



Henry H. Wheeler  
Brain Imaging Center  
UC Berkeley

# The Question of Reductionism



Scientific American

“There is only one science, and it is physics;  
all the rest is stamp collecting”

Attributed to Ernest Rutherford (1871-1937)

[Nobel Laureate in Chemistry, 1908]

- “Mental Talk” as “Folk Psychology”
- **Can** the Principles of Psychology be Reduced to the Principles of Physics?
  - Or, At Least, the Principles of Biology
- **Should** They?

# Levels of Explanation

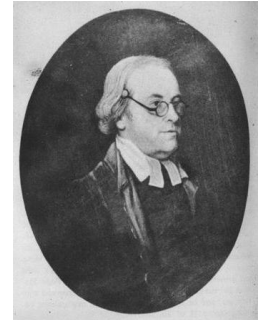
- **Psychological Explanations**
  - In Terms of Cognition, Emotion, Motivation
    - Individual Mental States
- **Sociocultural Explanations**
  - In Terms of Socio-Cultural Structures, Practices
    - Group Membership, Institutional Roles
- **Biophysical Explanations**
  - In Terms of Neurotransmitters, Genes, Hormones
    - Biological, Physical Structures, Processes



# “Psychology Has a Long Past, but Only a Short History”

Herman von Ebbinghaus (1908)

- 16<sup>th</sup>-17<sup>th</sup> c., “Study of the Soul” or “Spirits”
  - Post-Classical Latin
    - Greek *Psycho*, “Soul” or “Mind”
    - Latin *Logia*, “Study”
- Christian Wolff
  - *Psychologia Empirica* (1732)
  - *Psychologia Rationalis* (1734)
- David Hartley: *Observations on Man* (1749)
  - “Psychology, or the Theory of the Human Mind”

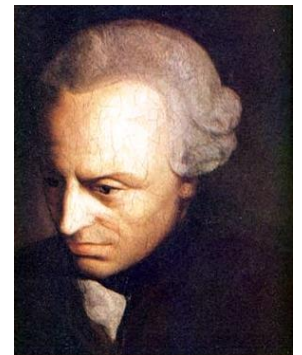


# Psychology as an Impossible Science

- Rene Descartes (1596-1650)
  - Substance Dualism
    - Material Body
    - Immaterial Mind



- Immanuel Kant (1724-1804)
  - Science Based on Measurement
    - Immaterial Substances Cannot be Measured



# The Emergence of Scientific Psychology

- Psychophysics

- Weber (1830)

- Fechner (1860)



- Physiological Psychology

- Doctrine of Specific Nerve Energies

- Muller (1833-1840)



- *Physiological Optics*

- Helmholtz (1856-1867)



- Reaction Time

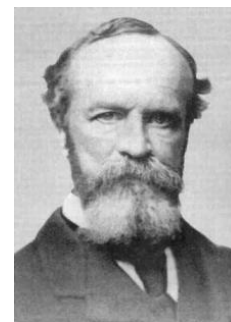
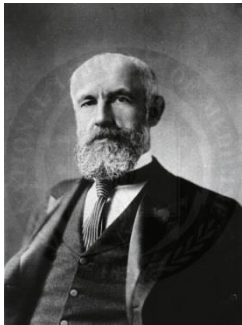
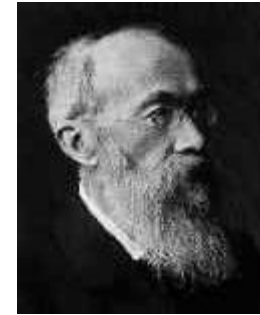
- Speed of Neural Impulse (Helmholtz, 1850)

- Speed of Mental Processes (Donders, 1868)



# First Laboratories

- Leipzig (Wundt, 1875-1879)
- In the United States
  - Johns Hopkins (Hall, 1883)
  - Pennsylvania (Cattell, 1888)
  - Wisconsin (Jastrow, 1888)
  - Harvard (James, 1875; Munsterberg, 1891)

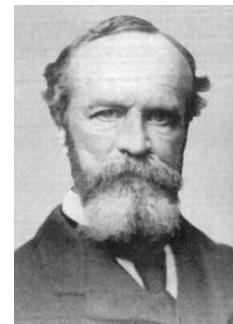


# First Textbooks

- Wundt,
  - *Grundzüge der Physiologischen Psychologie* (1873-1874)

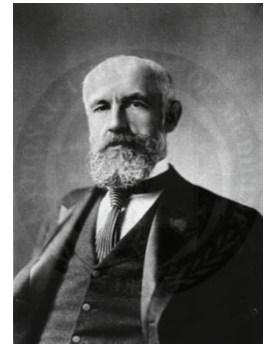


- James
  - *Principles of Psychology* (1890)
  - *Psychology: Briefer Course* (1892)



# First American PhDs

- G. Stanley Hall, Harvard  
– James, 1878
- Joseph Jastrow, Hopkins  
– Peirce, 1884
- James McKeen Cattell, Leipzig  
– Wundt, 1886

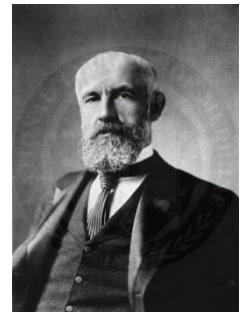


# First Journals

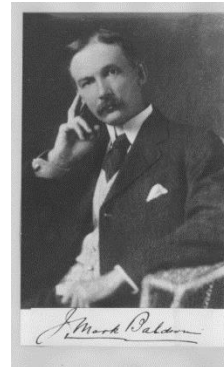
- *Philosophische Studien*  
– Wundt, 1881

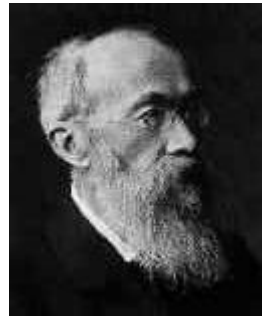


- *American Journal of Psychology*  
– Hall, 1887



- *Psychological Review*  
– Baldwin & Cattell, 1894





# Two Kinds of Science, Two Kinds of Psychology

Wundt (1900)



- *Naturwissenschaft*
  - vs. *Geisteswissenschaft*
- Experimental Psychology
  - vs. *Völkerpsychologie*

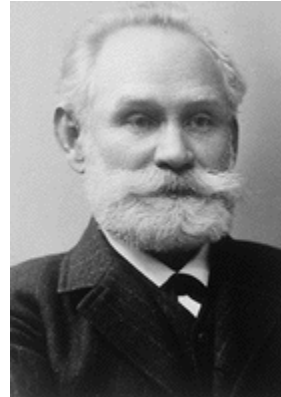


# From “Immediate Experience” to “Higher Mental Processes...”

- Memory
  - Ebbinghaus (1885)



- Learning
  - Pavlov (1898)
  - Thorndike (1898)

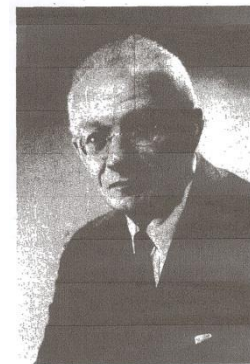
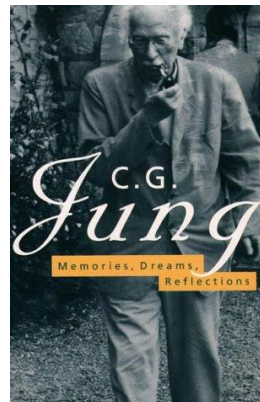


- Thinking
  - Hull (1920)



# ... and Beyond

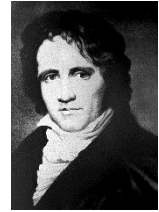
- Emotion and Motivation
  - Cannon (1915)
- Psychopathology
  - Kraepelin (1890s)
  - Jung (1919)
  - Shakow (1930s)



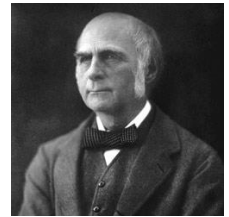
David Shakow

# Individual Differences

- Personal Equation (Bessel, 1820)



- Mental Measurement (Galton, 1883)
  - Regression, Correlation (1886)



- Intelligence (Binet & Simon, 1905)
  - Terman (1916), Wechsler (1939)

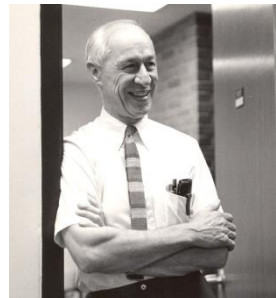


# Personality and Attitudes

- Personality Measurement
  - Woodworth Personal Data Sheet (1917)
  - Bernreuter Personality Inventory (1931)
- Attitude Measurement
  - Thurstone & Chave (1929)
  - Likert (1932)



ROBERT S. WOODWORTH



# Completing the Circle

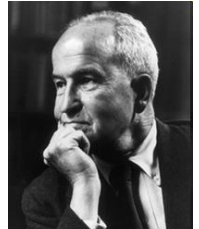
- Experimental Social Psychology

- Triplett (1898)
- Sherif (1935)



- Experimental Personality Research

- Rosenzweig (1937)
- Murray et al. (1938)



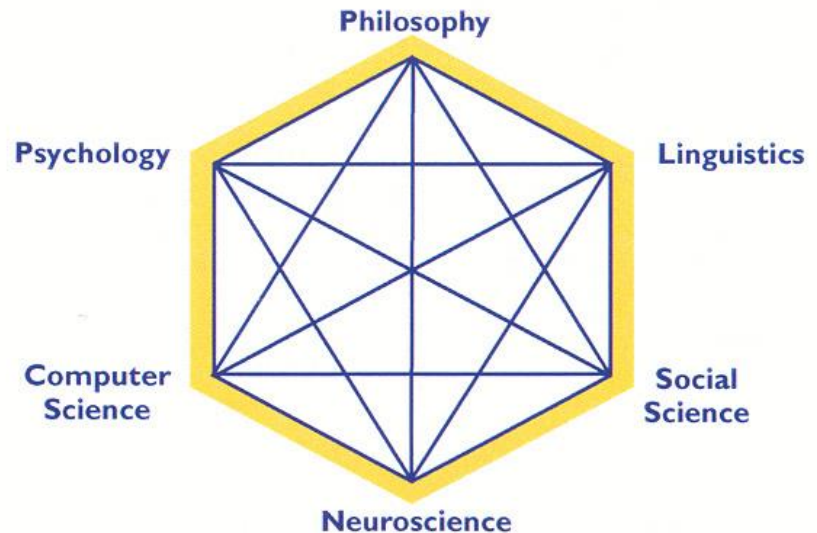
- Experimental Psychopathology

- Hunt (1936)



# Cognitive Science as an Interdisciplinary Field

- Philosophy
- Psychology
- Linguistics
- Computer Science
- Neuroscience
- Anthropology
  - Other Social Sciences



**Philosophy  
Theology  
Literature  
Fine Arts**

**Biology  
Ecology  
Physical Anthropology**

***Psychology***  
***“The Universe Within”***  
(Morton Hunt)

**Economics  
Sociology  
History  
Political Science  
Cultural Anthropology**

**Physics  
Chemistry  
Astronomy  
Cosmology**

