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E.g., Theological/religious barriers impeded the progress of physiological sciences (and therefore psychology):

- direct study of human body was forbidden
- doctrines regarding human exemptionalism (i.e., therefore, impossible to learn about human biology through animal studies)

# The Rise of Mechanism

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- an extremely intense, unbalanced, driven personality
- proposed a systematic account of the body as a machine; physiological processes described in terms of mechanistic interactions, controlled by hydraulics (fluids) and mechanics (levers)
- thus, human and animal bodies were complicated machines, consistent with the mechanistic zeitgeist of the time; e.g., water statues, clocks

# Mind-Body Dualism

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- this splitting of the mind & body still plagues us. We either have to accept that the body (brain) IS the mind, in which case humans are just (soulless) animals, i.e., bio-gunk; or we have to figure out how it is that a more-than-physical mind could exist, what its substrate is, and how it could interact with a physical body





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How does the brain give rise to the mind? How does 'objective' biological matter produce subjective experience?

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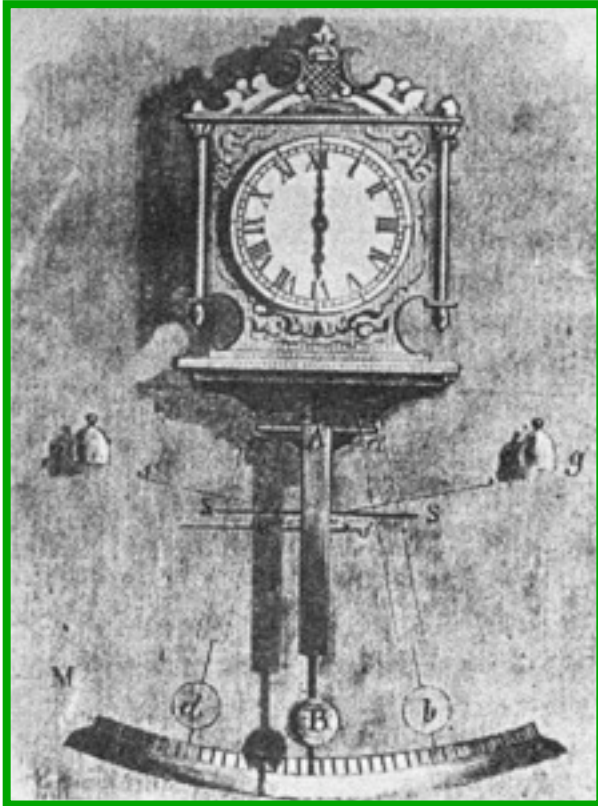
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People started realizing you can study nervous system processes via objective measures such as time.

# Wilhelm Wundt



- carefully calculated the distance traveled by the pendulum, and the time as  $1/10^{\text{th}}$  of a second

reasoned that it took humans  $1/10^{\text{th}}$  of a second to reorient their attention

therefore.....

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- interestingly, Darwin's ideas were influenced by the geological debate on "uniformitarianism" vs. "catastrophism"

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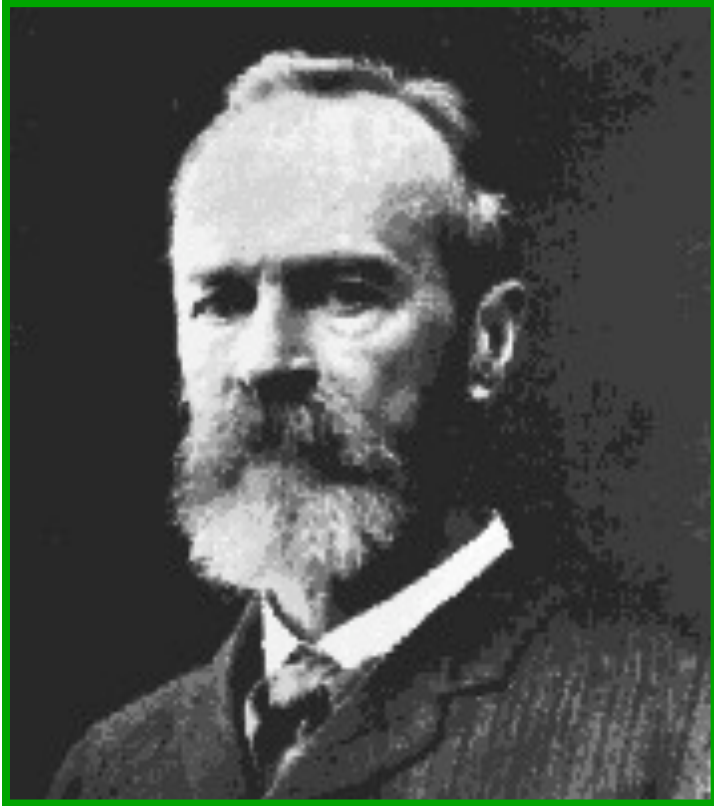
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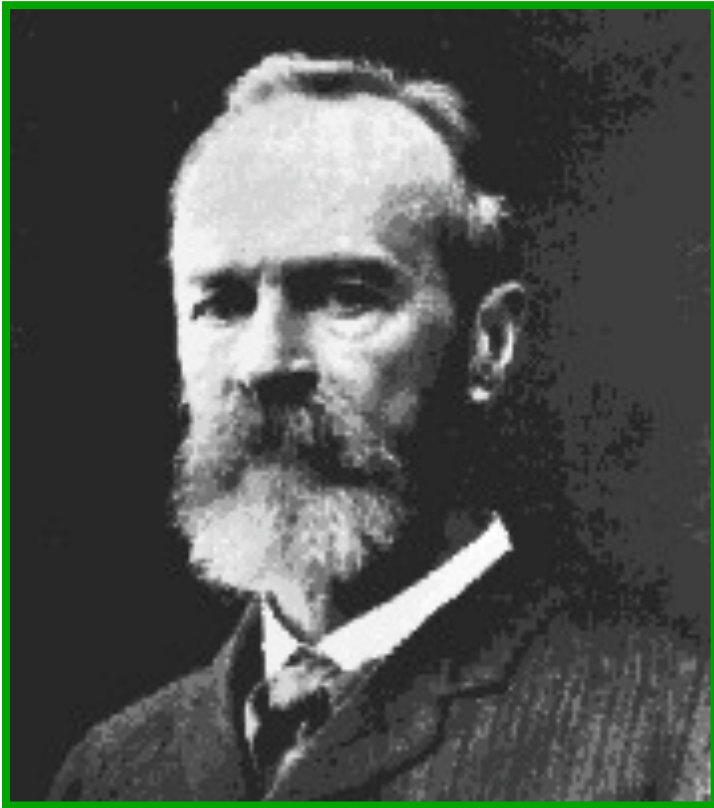
Wondered, why do animals do the things they do? What was the **function** of their behaviours?

# Functionalism



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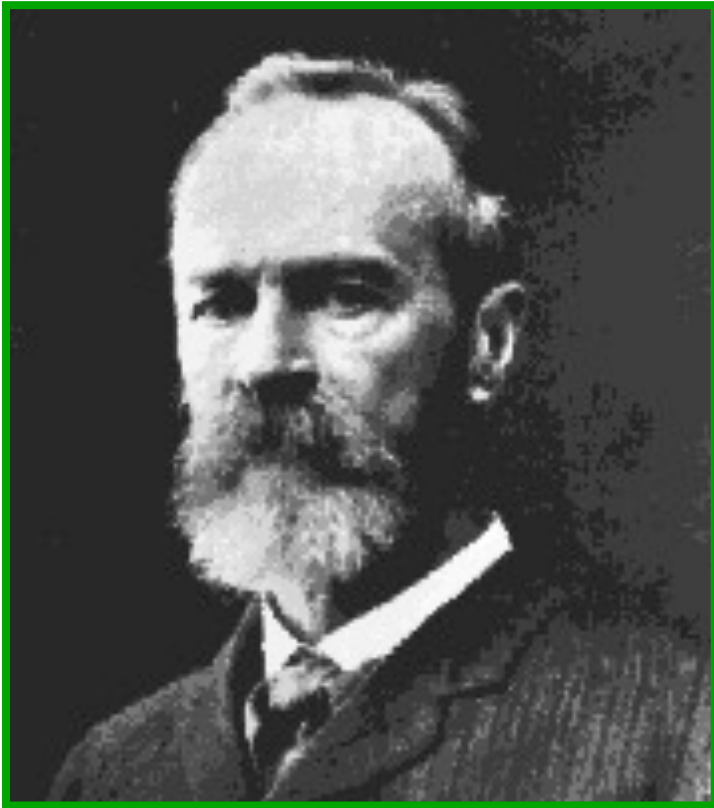
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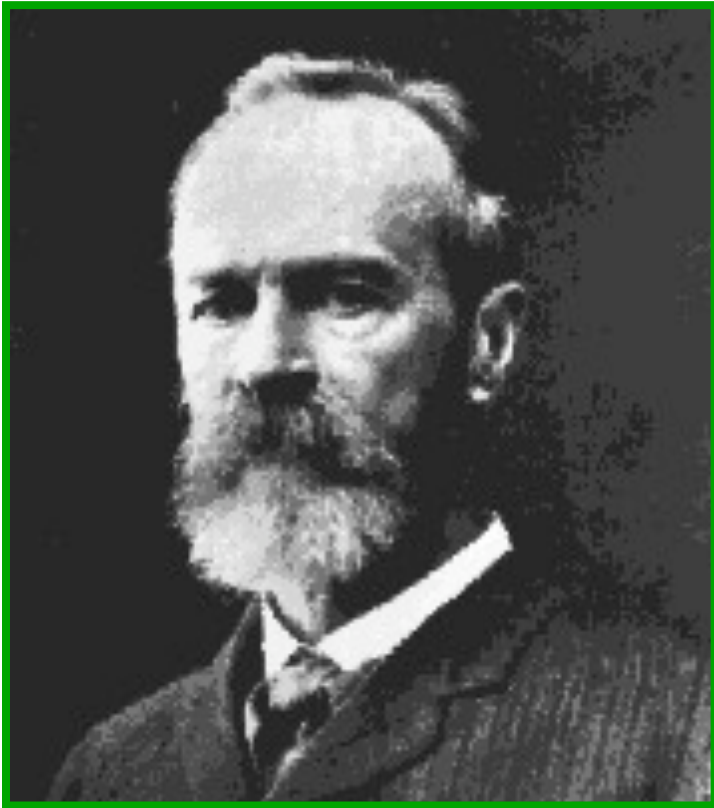
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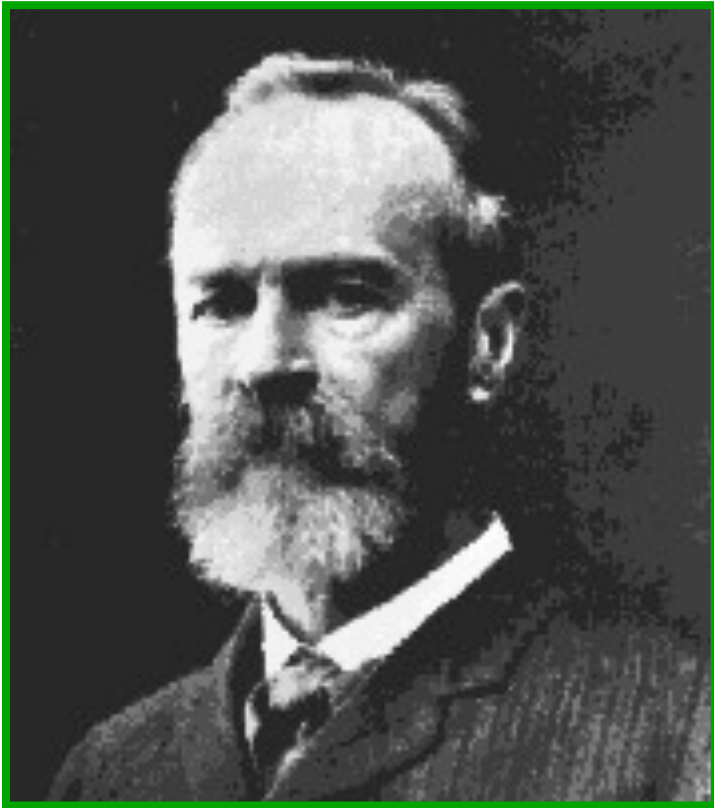
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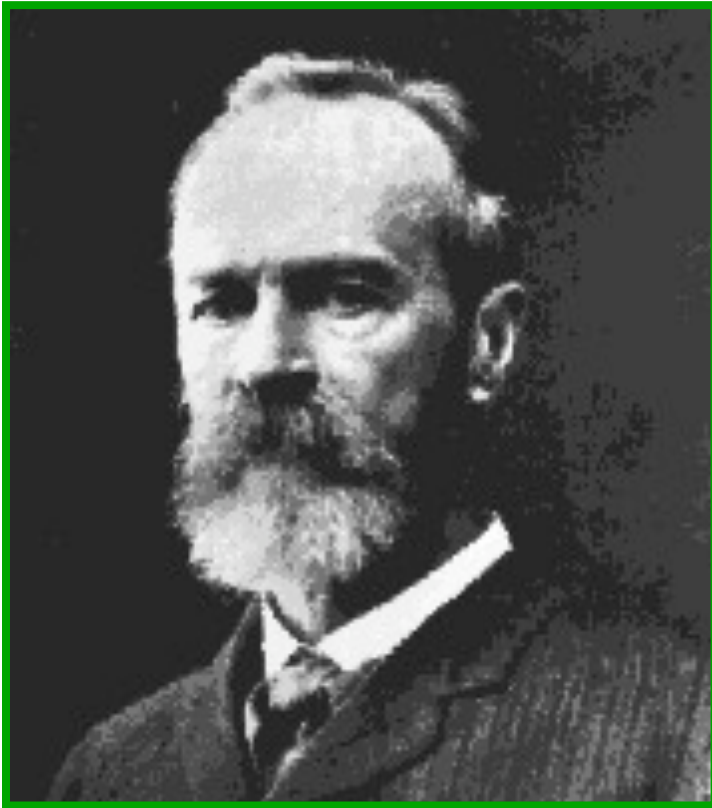
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- studied medicine
- went through major personal crisis RE: determinism & free will



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But to be a human, he would assume that he  
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- described thinking as a dynamic relationship between organism & environment, focused on problems of adaptation





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the matrix in which consciousness exists is the physiology of the central nervous system

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- biological revolution - 1980s - now
- neuroscience - 1990s - now

# Adopting a Scientific Perspective on People

In recent years, Psychology has become a very integrated discipline, where phenomena are being understood at multiple levels of analysis.

Right now, you are participating in a new phase in science, moving towards multi-factor causal models that require people to think more holistically, systemically, integratively

- e.g., “multiple levels of analysis” discussed in text

Multi-factor, multi-leveled thinking has  
many consequences for our  
understanding...

For example, how do you help someone with  
a troubled mind?

e.g., depression

# Fixing Families

A person's well-being, and indeed, entire psyche, is shaped by social relationships. Helping a person is usually dependent, to a large degree, on helping to improve the larger social relationships and contexts that influence the individual.

*Eating dinner together: The key to happy families.* The National Center on Addiction and Substance Abuse at Columbia University (2005)

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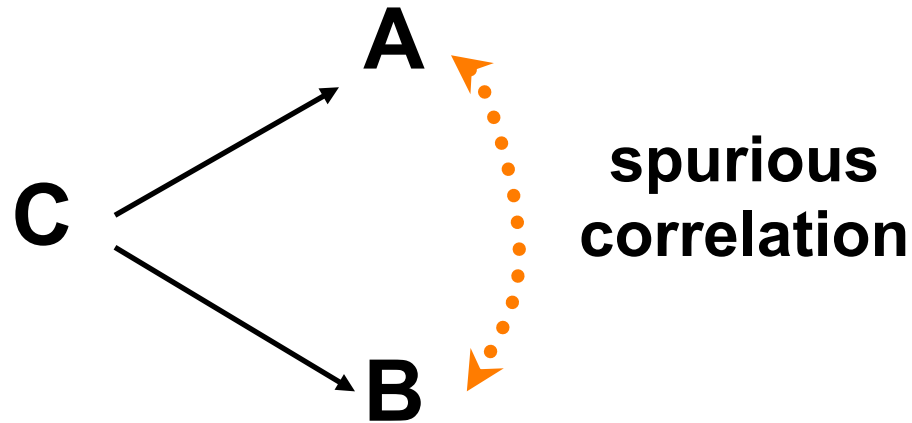
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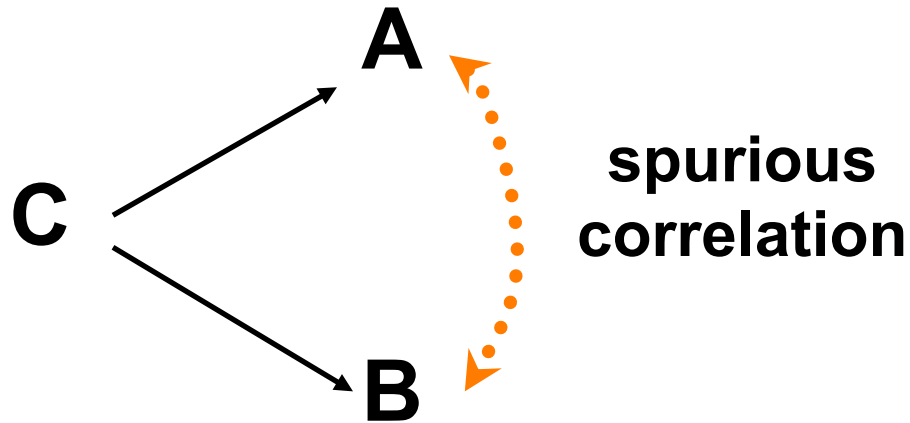
e.g., relationship conflict  $\rightarrow$  physical illness?

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BUT maybe:



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i.e.,  $C \rightarrow B$  is the real causal relationship; however, you don't know this, because the variable you are focused on is A, your independent variable, and C remains hidden, or unobserved

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what if it is these other factors that → improved mental health?



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- you therefore would have to create extra control conditions in your experiment to compare your psychotherapy group against (or you would have to measure these alternative constructs, and statistically show that how they vary does not account for the effects on the DV)

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therefore, the workshops only “work” in terms of the placebo effect

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Or maybe the process of signing up for and attending these workshops reinforces a person's motivation to do well in school. Thus, they work harder, study more, etc.. → better marks

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but finding the right control group is one of the trickiest, most difficult things you will face as a researcher....

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replication, convergence, multiple methods and the peer review process

# But how do you measure something?

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**conceptual**: the theoretical level; what you think is happening in reality

**operational**: the experimental, measurement level; what instrument or manipulation you use to reflect the conceptual variables



**REALITY**

(hidden)

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(hidden)

=

**Self-Esteem**

**REALITY**  
(hidden)

=

**Self-Esteem**

**Observation**

=

**Self-Esteem Scale**

- I feel like a failure
- Generally, I feel good about myself

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i.e., operationalization is itself based on a theory

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- adopt an appreciative eye: **summarize** what you think can be concluded; **think about what lessons can be drawn** from the findings; **connect** it to other things that you know about; consider how to **apply the insights** to something personally meaningful