

# Chapter 1: Introduction

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## Basic Concepts

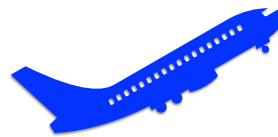
- What is a psychological test
  - measurement device or technique
  - quantifies behavior
  - used to make predictions
  - (often) composed of individual items
  - (often) scored against normative data

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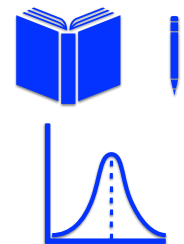
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## Why use tests?

Goal: measure Piloting Skills



Test Flight:  
Does the pilot crash?



Paper & Pencil Test:  
High Score?

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## Why use tests?

- Why use tests? vs. the alternative -- just measure the thing directly
  - faster - saves time
  - more convenient, portable, virtual
  - standardize across space & time
  - less dangerous (e.g. brain surgeon)
  - more accurate(?)
  - \$\$\$\$ profit

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## Arguments against testing

- UnReliable -- inconsistent results
- InValid -- doesn't measure what it claims
- Biased -- treats sub groups differently
- Enforced conformity -- punishes creativity
- People & Institutions adapt -- "study for the test", specialized tutoring
- Expensive -- few large private companies hold most of the business
- Privacy & Security & Cheating

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## Test types: administration

- Types of tests:
  - Individually-administered Tests
  - Group-administered Tests
  - Computerized (?)

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## Test types: domains

- Ability, Capacity or Potential
  - **Achievement**
    - learned skills or knowledge in specific area
  - **Aptitude**
    - ability to learn new skills / knowledge in specific area
  - **Intelligence**
    - general ability

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## Test types: more domains

- Personality
  - Structured (“Objective”)
  - Unstructured (“Projective”)
- Military & Civil Service
- Vocational Counseling
- Industry / Business
- Clinical Psychology / Psychiatry
- Health Psychology
- Neuropsychology
- Research

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## History - Antiquity

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## History : China

- Han Dynasty (206 BCE thru 220 CE) had test batteries for law, military, agriculture, geography, etc.
- The “Imperial Examination”
- Standardized tests (but not *Psychological*)
- In mid 1800s, British contact with China led to UK beginning testing
- Spreads to USA in late 1800s.

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Chinese exam hall 1873

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## Gold, silver, brass & iron

“Citizens, we shall say to them in our tale, you are brothers, yet God has framed you differently. Some of you have the power of command, and in the composition of these he has mingled gold, wherefore also they have the greatest honor; others he has made of silver, to be auxiliaries; others again who are to be husbandmen and craftsmen he has composed of brass and iron; and the species will generally be preserved in the children. But as all are of the same original stock, a golden parent will sometimes have a silver son, or a silver parent a golden son.”

-- Plato, *The Republic*, circa 380 BC

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## Intermission

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- Cognitive psychology suggests learning is improved by using *distributed practice*, *deep processing*, and having time for *memory consolidation*
- Suggestions:
  - go back and (re-)read the textbook topics we just covered
  - take your own hand-written or typed notes
  - take the chapter quiz (challenging: you aren't done with the lecture!)
  - take a rest break - overnight is best

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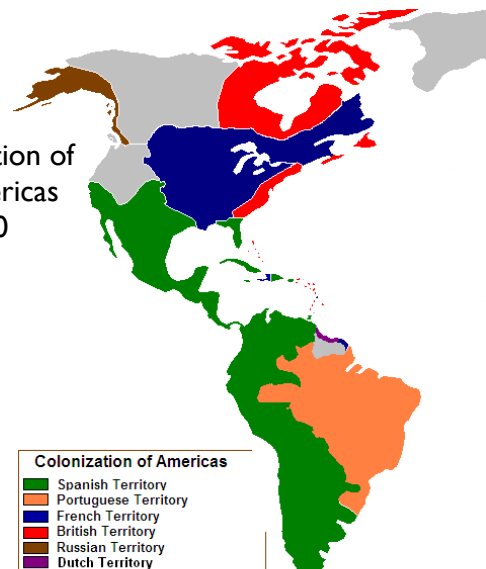
## Review

- Definition of Psychological Test
- Test Domains
  - Achievement
  - Aptitude
  - Intelligence
- Antiquity
  - Gold, Silver, Brass & Iron (Socrates, as written by his student, Plato)
  - “Socrates knew he was telling a lie”
- Non-western society
  - Chinese *Imperial Examination*

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Colonization of the Americas  
1750



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## History : 18th - 19th Century

- The zeitgeist : colonialism, independence, contact between new races & ethnicities. Slavery.
- The needs: justify slavery, inequality.
- The techniques: very crude statistics, physical measurements
- Evolution vs. Creationism

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## Racial Attitudes of the 1800s

“[...]There is a physical difference between the white and black races which I believe will for ever forbid the two races living together on terms of social and political equality. And inasmuch as they cannot so live, while they do remain together there must be the position of superior and inferior, and I as much as any other man am in favor of having the superior position assigned to the white race.”

-- 1858, in a debate with Stephen Douglas  
Abraham Lincoln

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# Louis Agassiz

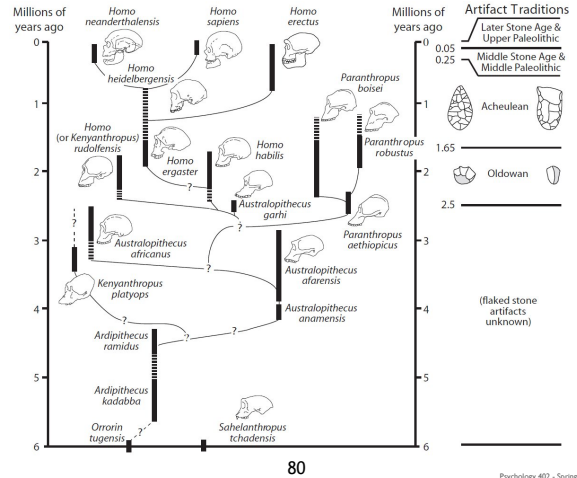
- Swiss-born, European-trained biologist / geologist
- Came to Harvard in 1847
- Creationist -> Polygenist
- Taxonomist
- Resisted Darwin's theory of Evolution
- d. 1873



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# Taxonomy



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# Species

- Old definition:
  - group of organisms that can breed
- Modern definition:
  - "Species are actual or potential interbreeding populations sharing common gene pool, reproductively isolated from other groups."
- Example:
  - male donkey + female horse = mule (sterile)
  - female donkey + male horse = hinny

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# Species

- Hybrids
  - Mule = male donkey + female horse
  - Hinny = female donkey + male horse



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# Samuel George Morton

- Theory of Polygenism
  - Humans are composed of different species, created by god
- Craniometry
- Biological Determinism
- "Scientific Racism"
- The "American School"
- d. 1851

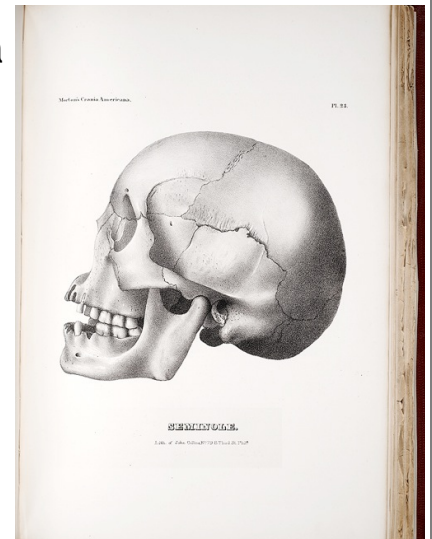


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# Crania Americana

Samuel George Morton  
1839

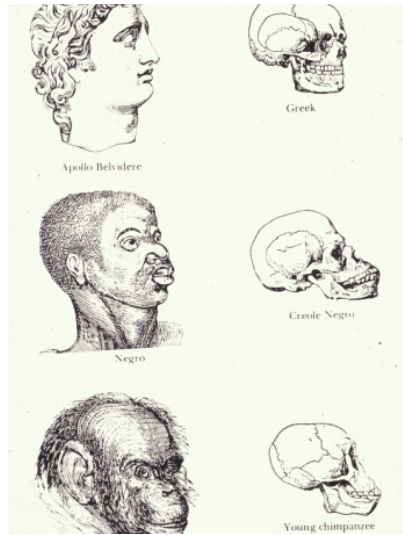


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## Indigenous Races of the Earth

*note the false exaggeration of the chimp and negro skulls to suggest that "blacks might even rank lower than the apes"*

(Gould, p. 65, citing Nott & Gliddon, 1868 )

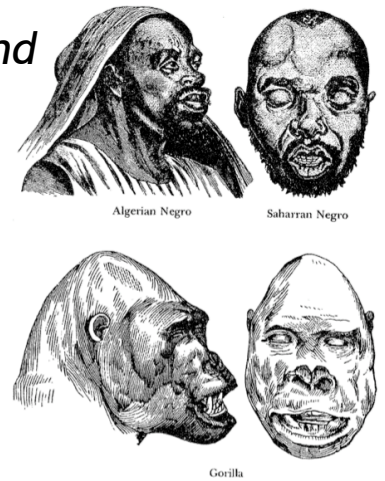


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## Types of Mankind

*"An unsubtle attempt to suggest strong affinity between blacks and gorillas"*

(Gould, p. 67, citing Nott & Gliddon, 1854 )



2\*2 An unsubtle attempt to suggest strong affinity between blacks and gorillas. From Nott and Gliddon, *Types of Mankind*, 1854. Nott and Gliddon comment on this figure: "The palpable analogies and dissimilitudes between an Indian and a gorilla."

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## Visible differences?

Indigenous  
Australian  
Melanesia  
African  
European

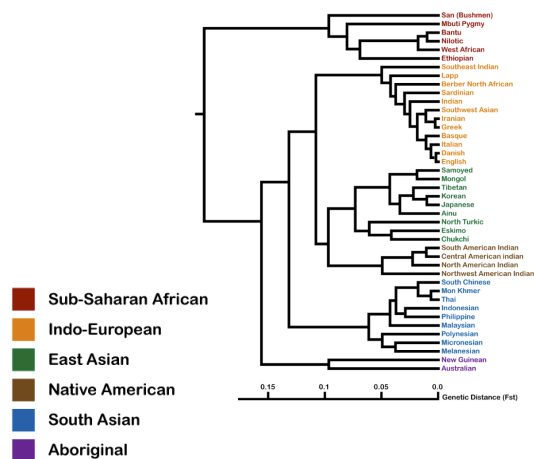


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## Genetic Differences

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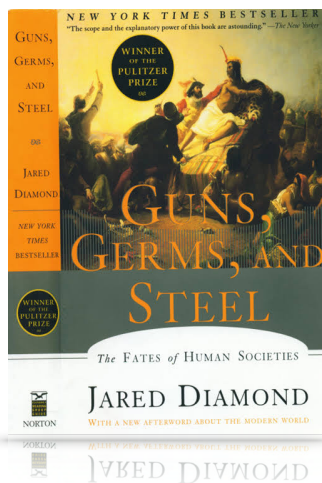


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Why did Europeans conquer many native peoples instead of vice-versa?

- Guns
- Germs
- Steel



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## History : 19th - 20th Century

- The zeitgeist : Industrialism, world conflict, communism, capitalism
- The needs: healthcare, war, government -- desire to identify unusually high & low functioning people
- The techniques: Advanced statistics, measurement theory
- Theories of psychological development, intelligence, genetics.

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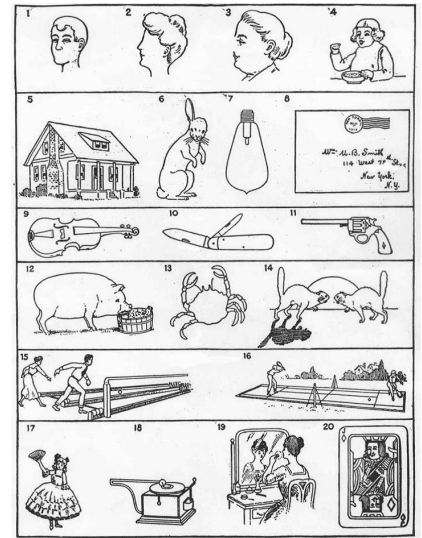
## Early 20th century

- Notable events in history:
  - Binet-Simon Scale
    - introduced idea of IQ as ratio of mental age to actual age
    - use of standardization sample
- Army tests -- WWI
  - Alpha -- literate
  - Beta -- illiterate

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## 93 Army Beta



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## History: IQ tests

- Charles Spearman : “g” -- theory of general intelligence factor underlying all other special abilities.
- David Wechsler: WAIS and WISC tests
  - Subtests - Verbal vs. Performance Scales
  - Large normative group -- IQ = performance as related to peers
- Thurstone, Cattell, Gardner, others: further theories of intelligence (covered later)

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## Summary

- History of testing... “A long past but a short history”
- America as newly independent colony
  - —> independent science
- Slavery
- Theories of human development
  - Creationism (mono / poly-genism)
  - Evolution
  - Species
- Scientific Racism

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## Freudian Defense Mechanisms

- Level 1 - Pathological
  - Denial, Distortion, Splitting
- Level 2 - Immature
  - Acting out, Fantasy, Idealization, Passive aggression, **Projection**, Somatization
- Level 3 - Neurotic
  - Displacement, Dissociation, Hypochondriasis, Intellectualization, **Rationalization**, Reaction Formation, Regression, Repression, Undoing
- Level 4 - Mature
  - Altruism, Anticipation, **Humor**, Identification, Introjection, Sublimation, thought suppression

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## History: Personality Tests

- Traits vs. States
- Structured / “objective”:
  - WPDS (early)
  - MMPI, CPI (modern)
  - 16PF (modern, based on factor analysis)
  - NEO (NEO-FFI: NEOAC)
- Unstructured / “projective”:
  - Rorschach (inkblot test)
  - TAT (Thematic Apperception Test)

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## Structured Tests: Criticism

- “Correct” answers are obvious
- lack of psychological theory?
- → Structured tests: improved designs (MMPI)
- → Projective testing: new theory

	Yes	No
1. I wet the bed.	<input type="checkbox"/>	<input type="checkbox"/>
2. I drink a quart of whiskey each day.	<input type="checkbox"/>	<input type="checkbox"/>
3. I am afraid of closed spaces.	<input type="checkbox"/>	<input type="checkbox"/>
4. I believe I am being followed.	<input type="checkbox"/>	<input type="checkbox"/>
5. People are out to get me.	<input type="checkbox"/>	<input type="checkbox"/>
6. Sometimes I see or hear things that other people do not hear or see.	<input type="checkbox"/>	<input type="checkbox"/>

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## MMPI

1. I like mechanics magazines
2. I have a good appetite
3. I wake up fresh & rested most mornings
4. I think I would like the work of a librarian
5. I am easily awakened by noise
6. I like to read newspaper articles on crime
7. My hands and feet are usually warm enough
8. My daily life is full of things that keep me interested
9. I am about as able to work as I ever was
10. There seems to be a lump in my throat much of the time

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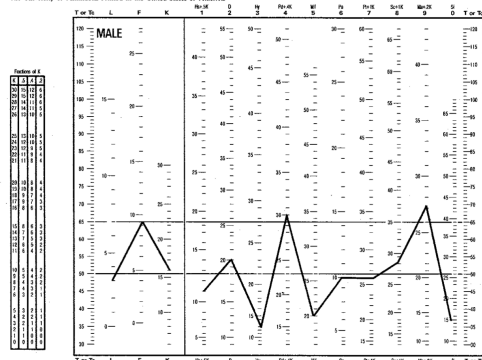
## MMPI-2

Profile for Basic Scales

Minnesota Multiphasic Personality Inventory-2  
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1942, 1964 (revised 1979, 1988). This Profile Form 1988.  
All rights reserved. Distributed exclusively by NATIONAL COMPUTER SYSTEMS, INC.  
Manufactured from the University of Minnesota.

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The University of Minnesota. Printed in the United States of America.

Name: STEVE  
Address: \_\_\_\_\_  
Occupation: SALESMAN Date Tested: / /  
Education: 12 Age: 30 Marital Status: MARRIED  
Referred By: \_\_\_\_\_  
MMPI-2 Code: 94-28/671:503 F-K/L  
Scorer's Initials: JRS



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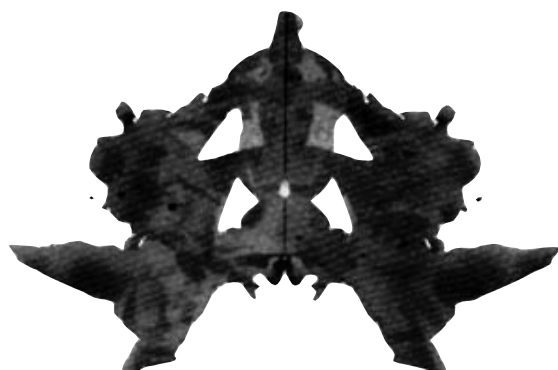
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## TAT



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## Rorschach 1



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## MMOM - Themes

- Biological Determinism - a theory of limits
- Measuring intelligence as a single quantity...
- Plato: dialectic. Church: dogma. Now: science.
- “Book is about the scientific version of Plato’s tale”
- “Socrates knew that he was telling a lie”
- Science (and scientists) are not objective
  - social endeavor
  - fraud, but also (and worse) unconscious bias

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# MMOM - Fallacies

- Reification
  - naming a thing gives it disproportionate power
- Ranking
  - over-simplifying complexity by ordering on a single scale