

How do we Assess Intelligence?



- Alfred Binet and Theodore Simon established a concept called a **mental age** (what a person of a particular age should know).
- They discovered that by discovering someone's mental age they can predict future performance.
- Hoped they could use test to help children, not label them.

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"The five candles represent his mental age."

Binet-Simon Test

- The test had four important distinctions:
- Scores were interpreted at their current performance
- Used to identify students in need of help, not label them or categorize them.
- Emphasized that training and opportunity could affect intelligence.
- Was empirically constructed





十八年五月廿五日
十八年五月廿五日

What do scores mean?

What to do if you score low on an IQ test?

- Lewis Terman, of Stanford University, began with a different assumption than Binet; Terman felt that intelligence was unchanging and innate (genetic).
- He created the “Stanford-Binet Test”



Study, and develop self-discipline and attention span.

$$\text{IQ} = \frac{\text{mental age}}{\text{chronological age}} \times 100$$

Remove your genes from the population (eugenics).



Terman (from Stanford) and his IQ Test

- A 8 year old has a mental age of 10, what is her IQ?
- A 12 year old has the mental age of 9, what is his IQ?
- Used Binet's research to construct the modern day IQ test called the Stanford-Binet Test.

$$\text{IQ} = \frac{\text{mental age}}{\text{chronological age}} \times 100$$

**Eugenics Seeks to Improve the Natural, Physical,
Mental and Temperamental Qualities of
the Human Family**



**CARNEGIE INSTITUTION OF WASHINGTON
DEPARTMENT OF GENETICS**

The Eugenics Record Office, Cold Spring Harbor, Long Island, N. Y.

Founded by Mrs. E. H. Harriman

Established October 1, 1910

CHARLES B. DAVENPORT, Director

HARRY H. LAUGHLIN, Assistant Director

This office is devoted to the study of the biological forces which determine the natural capacities and limitations of mankind. It looks forward to having ultimately a good working pedigree-index of the natural traits of a large portion of the families of America.

Science can not experiment with human beings. It desires merely to learn and publish the actual results of man's experiments on himself. Every marriage is an experiment in heredity. Every person should be interested in the actual



EUGENICS

EUGENICS IS THE
SELF DIRECTION

OF HUMAN EVOLUTION

LIKE A TREE

EUGENICS DRAWS ITS MATERIALS FROM MANY SOURCES AND ORGANIZES
THEM INTO AN HARMONIOUS ENTITY.

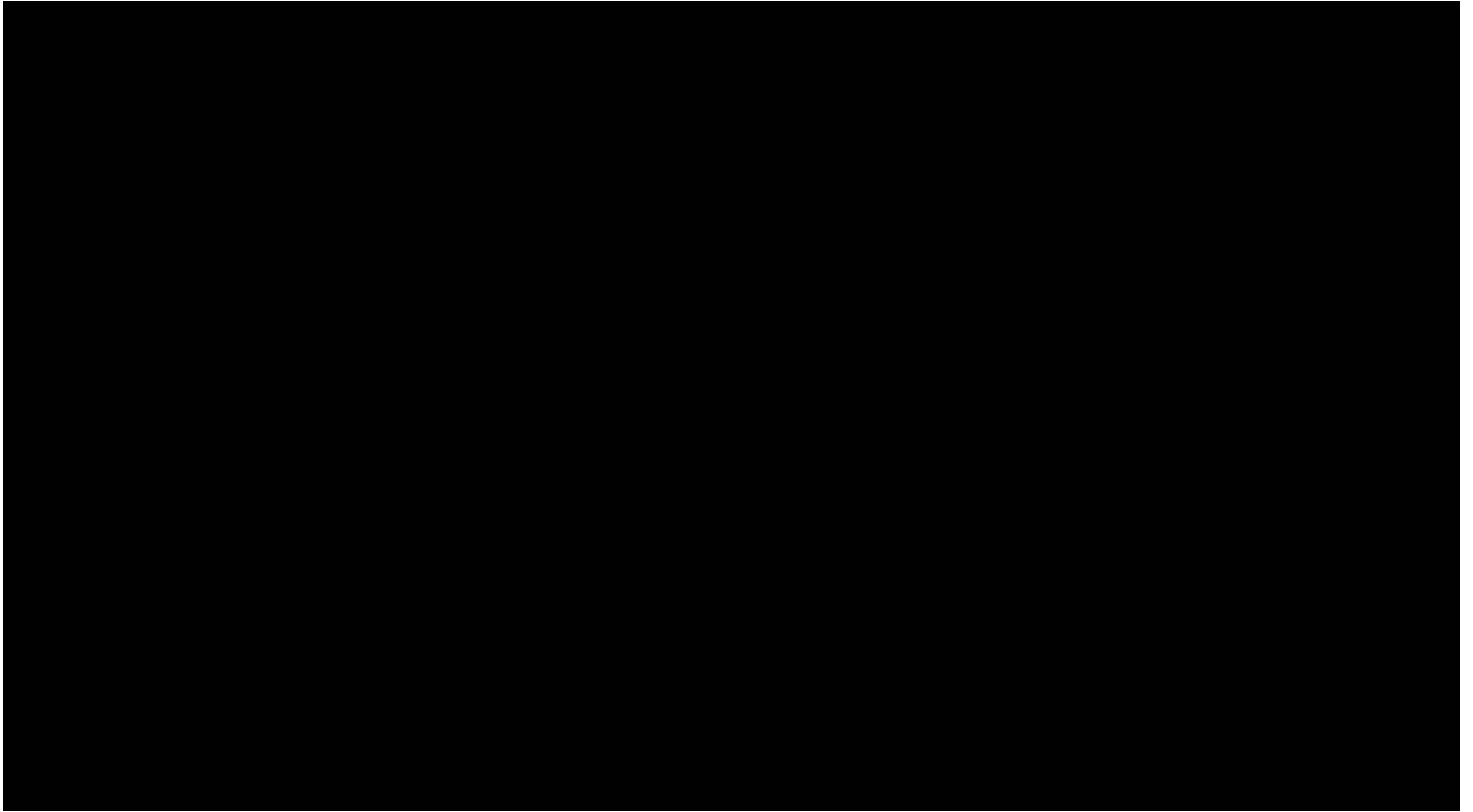
Nazi Propaganda: "Qualitative decline in the population...It will come to this if individuals with lesser value have four children and those of higher value have two."

Qualitativer Bevölkerungsabstieg. bei zu schwacher Fortpflanzung der Höherwertigen



So würde es kommen,
wenn Minderwertige 4 Kinder und Höherwertige 2 Kinder haben.

George Bernard Shaw -
a Nobel Prize and Oscar-winning Irish author and
philosopher.



Virginia's test case - Carrie Buck

"A probable potential parent of socially inadequate offspring."



• At her trial, she was said to have "a record of immorality, prostitution, untruthfulness and syphilis."

• In private writings, the director of the home where she lived described her family as: "These people belong to the shiftless, ignorant and worthless class of anti-social whites of the South"

<http://www.hsl.virginia.edu/historical/eugenics/3-buckvbell.cfm>

<http://www.eugenicsarchive.org/eugenics/>

Account Name	Account Number	Account Type	Account Status
John Doe	123456789	Checking	Active
Jane Smith	987654321	Savings	Active
ABC Company	555555555	Business	Active
DEF Company	666666666	Business	Active
GHI Company	777777777	Business	Active
JKL Company	888888888	Business	Active
MNO Company	999999999	Business	Active
PQR Company	000000000	Business	Active
STU Company	111111111	Business	Active
VWX Company	222222222	Business	Active
YZA Company	333333333	Business	Active
BCD Company	444444444	Business	Active
EFG Company	555555555	Business	Active
HIJ Company	666666666	Business	Active
KLM Company	777777777	Business	Active
NOP Company	888888888	Business	Active
QRS Company	999999999	Business	Active
TUV Company	000000000	Business	Active
WXY Company	111111111	Business	Active
ZAB Company	222222222	Business	Active
ACD Company	333333333	Business	Active
EFG Company	444444444	Business	Active
HIJ Company	555555555	Business	Active
KLM Company	666666666	Business	Active
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HIJ Company	444444444	Business	Active
KLM Company	555555555	Business	Active
NOP Company	666666666	Business	Active
QRS Company	777777777	Business	Active
TUV Company	888888888	Business	Active
WXY Company	999999999	Business	Active
ZAB Company	000000000	Business	Active

Some well-known individuals who supported eugenics:



Alexander Graham Bell
John D. Rockefeller
Theodore Roosevelt
Woodrow Wilson
Winston Churchill

Coming to America

- The idea of IQ testing became popular in America for three reasons:
 - A huge increase in immigration
 - New laws requiring universal education
 - Military assessing new recruits for WWI
 - Despite its utility, IQ testing had a big downside. Tests ended up reinforcing prevailing prejudices about race and gender.
 - Ignored was the fact that environmental disadvantages limit the full development of people's intellectual abilities.

Changes in how *intelligence* is defined: Binet v. Terman

- Binet: intelligence malleable
- Terman: intelligence is inherited and stable



Modern Tests of Mental Abilities

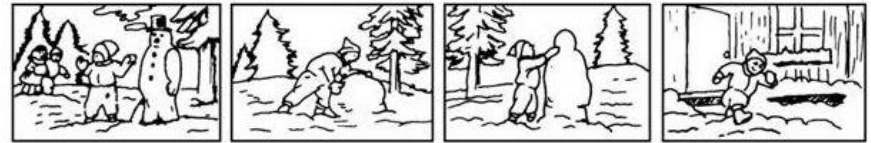
- Wechsler Adult Intelligence Scale (WAIS) consists of 11 subtests and cues us in to strengths by using.....

Factor Analysis

- Later - Wechsler Intelligence Scale for Children (WISC), an intelligence test for preschoolers.

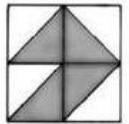
Picture Arrangement

The pictures below tell a story. Put them in the right order to tell the story.



Block Design

Using the four blocks, make one just like this.



Object Assembly

If these pieces are put together correctly, they will make something. Go ahead and put them together as quickly as you can.








Digit-Symbol Substitution

Code					
	1	2	3	4	5

Test

1	5	4	2	1	3	5	4	1	5

Wechsler Adult Intelligence Scale (WAIS)

Test	Description	Example
Verbal scale		
Information	Taps general range of information	On what continent is France?
Comprehension	Tests understanding of social conventions and ability to evaluate past experience	Why are children required to go to school?
Arithmetic	Tests arithmetic reasoning through verbal problems	How many hours will it take to drive 150 miles at 50 miles per hour?
Similarities	Asks in what way certain objects or concepts are similar; measures abstract thinking	How are a calculator and a typewriter alike?
Digit span	Tests attention and rote memory by orally presenting series of digits to be repeated forward or backward	Repeat the following numbers backward: 2 4 3 5 1 8 6
Vocabulary	Tests ability to define increasingly difficult words	What does audacity mean?
Performance scale		
Digit symbol	Tests speed of learning through timed coding tasks in which numbers must be associated with marks of various shapes	Shown: 1 2 3 4 Fill in: 1 4 3 2 
Picture completion	Tests visual alertness and visual memory through presentation of an incompletely drawn figure; the missing part must be discovered and named	Tell me what is missing: 
Block design	Tests ability to perceive and analyze patterns by presenting designs that must be copied with blocks	Assemble blocks to match this design: 
Picture arrangement	Tests understanding of social situations through a series of comic-strip-type pictures that must be arranged in the right sequence to tell a story	Put the pictures in the right order: 
Object assembly	Tests ability to deal with part/whole relationships by presenting puzzle pieces that must be assembled to form a complete object	Assemble the pieces into a complete object: 

Assessing Intelligence: Sample Subscores from the WAIS

VERBAL

General Information
Similarities
Arithmetic Reasoning
Vocabulary
Comprehension
Digit Span

PERFORMANCE

Picture Completion
Picture Arrangement
Block Design
Object Assembly
Digit-Symbol Substitution