

History of Forensic Science



Before 17th century

Confrontation by the accuser



Confession under torture



GUILTY



Strength to resist the pain



INNOCENT



Forensic Science

the application of science to the court of law



Criminalistics

the application of scientific techniques
in collecting and analyzing physical
evidence

Early Use of Forensics

3rd Century China:

- Coroner solved a case where a woman was suspected of murdering her husband and burned the body
- She claimed he died in an accidental fire
- Tested whether or not a body would have ashes in its mouth if it died in a fire using pigs
- When confronted with the coroner's evidence, the woman confessed.



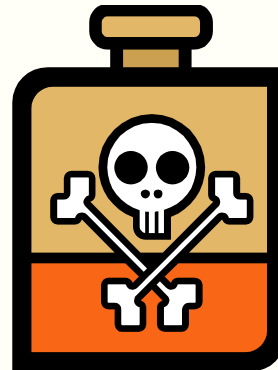
Marcello Malpighi



- Professor of Anatomy at University of Bologna in Italy
- Wrote some of the first recorded notes about fingerprint characteristics in 1686
- But even he didn't see their value as a way to indentify people

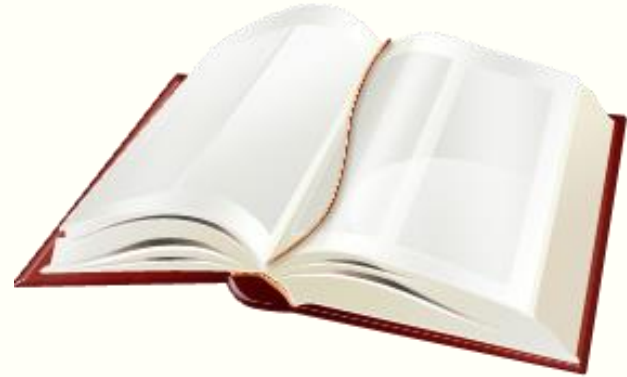
Carl Wilhelm Scheele

- 1775
- Swedish Chemist
- Devised the test for detecting the poison **arsenic** in corpses



Valentin Ross

- German Chemist
- 1806
- Discovered a more precise method for detecting small amounts of Arsenic



Mathieu Orfila

- Spain
- 1814
- **“Father of Forensic Toxicology”**
- Published the first scientific treatise on the detection of poisons



1828:

**The invention of the
Polarized Light Microscope**



1839:

**First microscopic
detection of sperm**

James Marsh

- **Scottish Chemist**
- **1839**
- **The first to testify in a criminal trial on the detection of Arsenic in a victim's body**
- **“expert witness” using science in a legal context**





1863:

The first presumptive test for blood



1850's – 1860's:

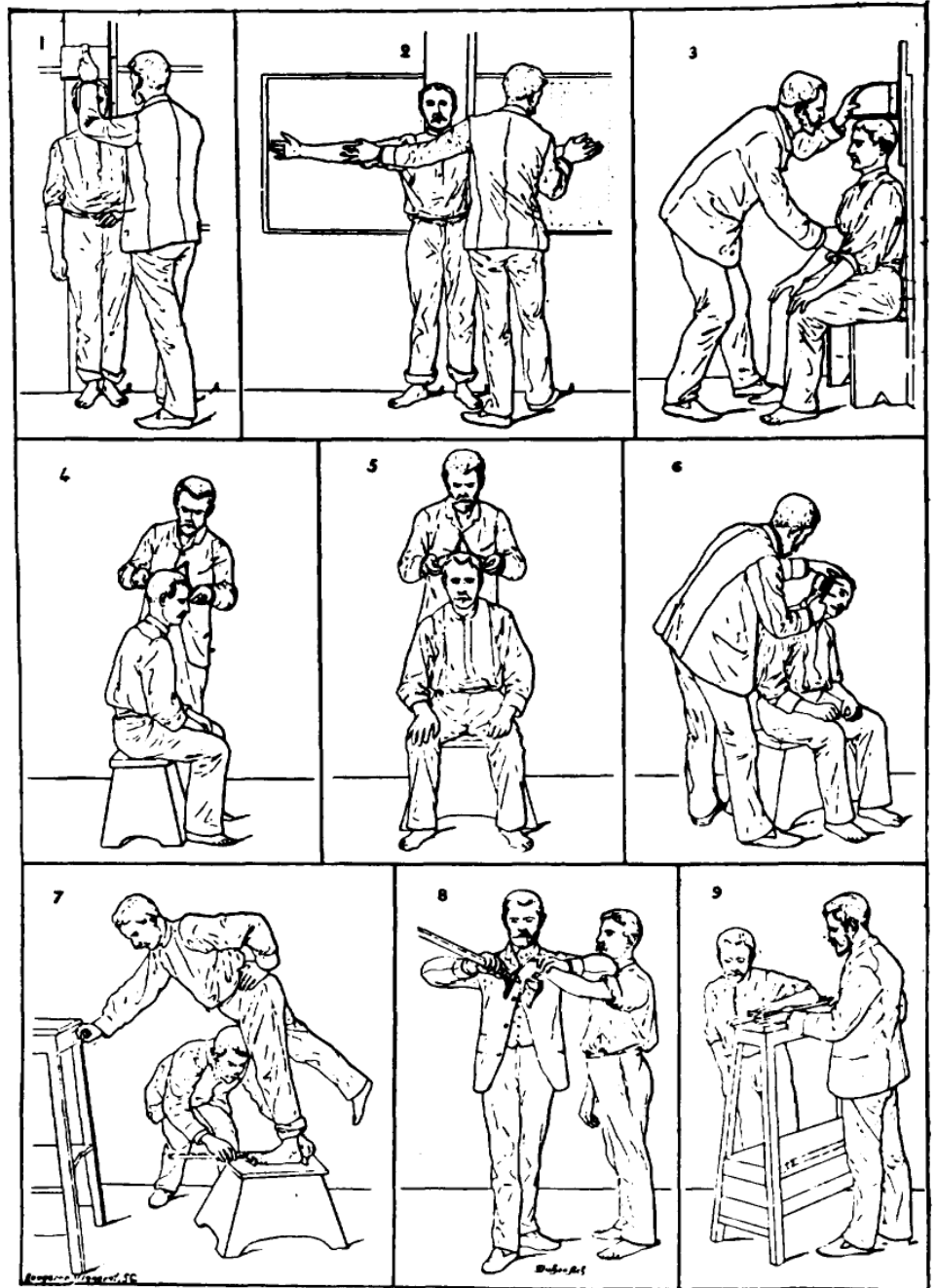
**Development in photography and
Improved records in forensic science**

Alphonse Bertillon

- French Anthropologist
- Introduced the **Bertillon System** (aka **Anthropometry**) in 1879
- Used various measurements of the body to identify people by their physical appearance
 - *Eventually replaced by fingerprinting*
- Also considered “father of the mugshot.”



Bertillon's Anthropometry



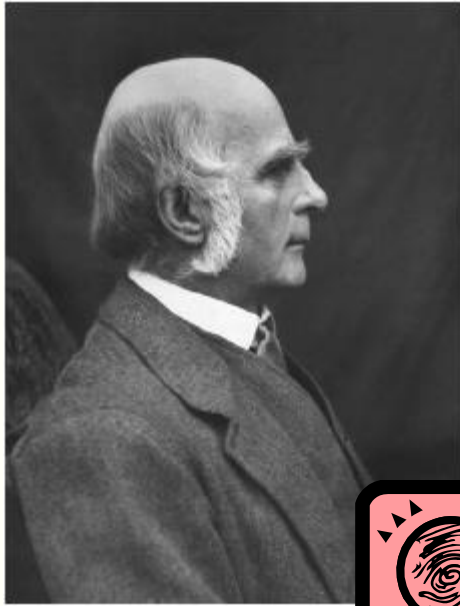


What does this picture make you think of?

“Sherlock Holmes”

- Fictional character in books by Sir Arthur Conan Doyle
- First book: *A Study in Scarlet*, 1887
- Popularized using scientific method in solving crimes
- Described elements of newly developing techniques in serology, fingerprinting, firearm examination, and document examination



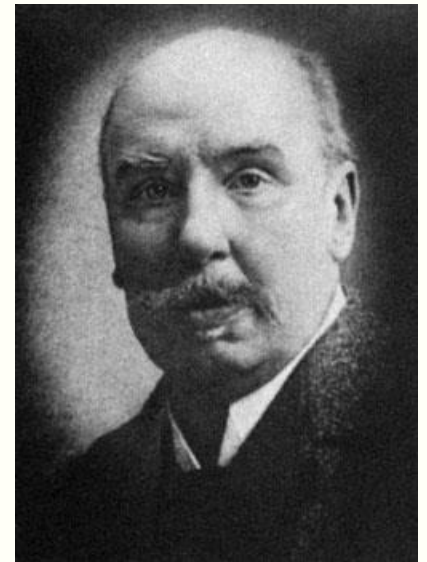


Francis Henry Galton

- Wrote the first definitive study of fingerprints and developed a classification system
- 1892: published *Finger Prints* book

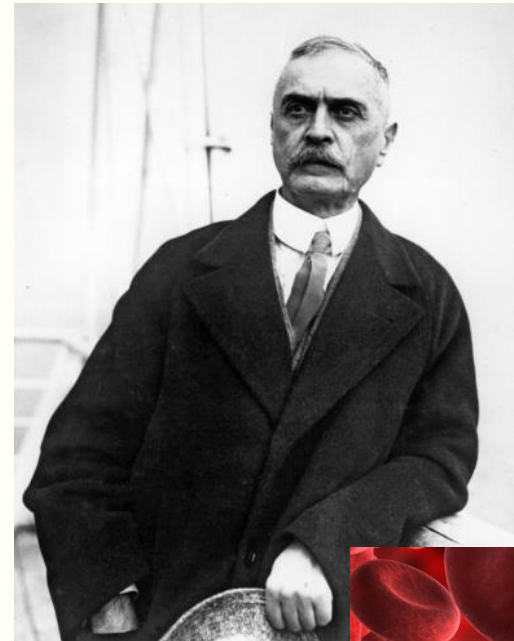
Hans Gross

- Austrian prosecutor and judge
- 1893
- Published *Criminal Investigation*
- Discussed the benefits of science in criminal investigations



Karl Landsteiner

- 1901
- Discovered **ABO Blood typing**



Albert Osborn

- 1910
- Published ***Questioned Documents***

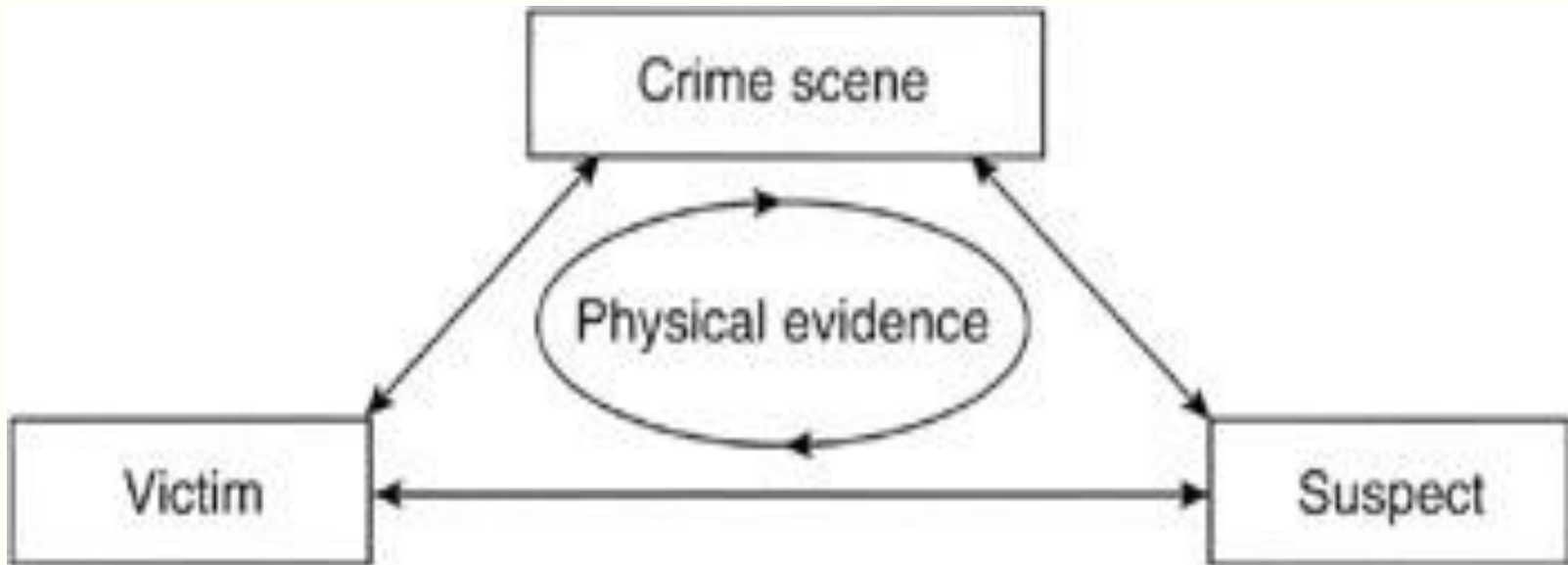
Edmond Locard

- 1877-1966
- French doctor/criminologist
- Developed **Locard's Exchange Principle**
- Opened the very first crime laboratory in France

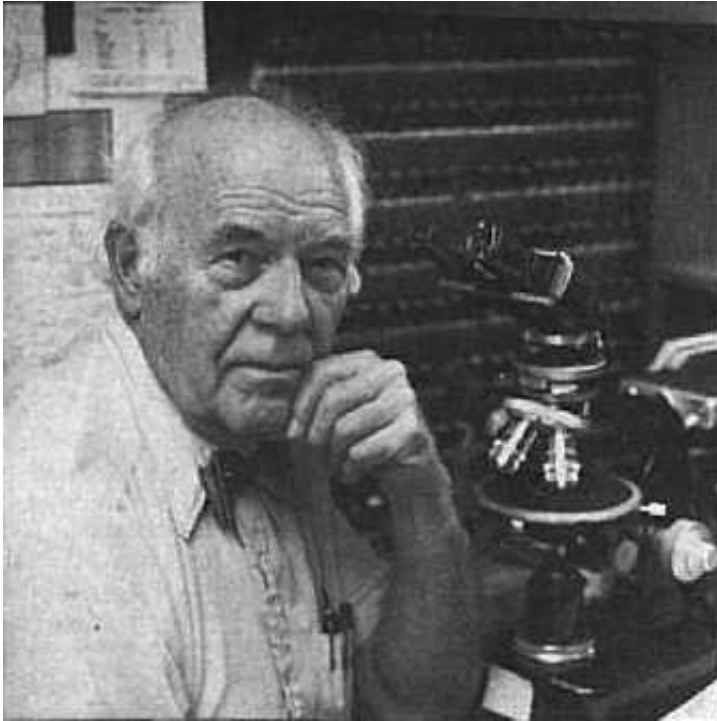


Locard's Exchange Principle

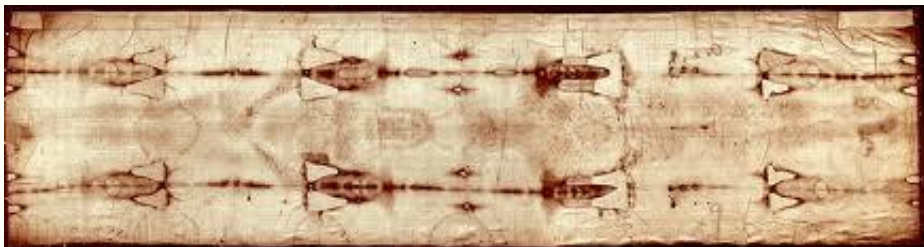
- “...with contact between two items, there will be an exchange.”



Walter McCrone

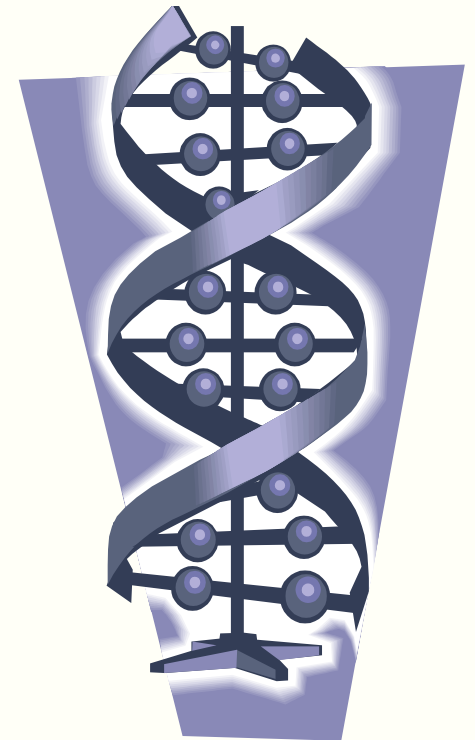
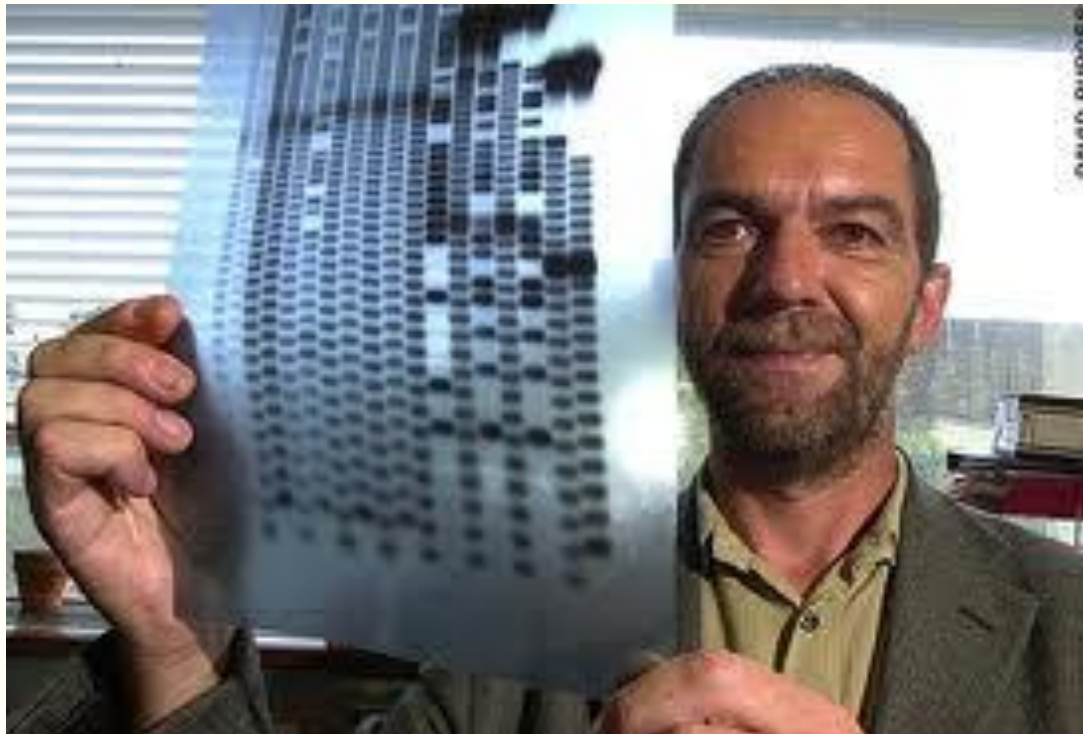


- 1916-2002
- American chemist
- **Microscopy expert**
- Examined The Shroud of Turin and the Vinland map



Sir Alec Jeffreys

- 1984
- Developed first DNA Profiling test



History of Crime Labs in the United States

1923:

Los Angeles PD Crime Lab: **the 1st crime lab in US**

1930's:

University of CA at Berkeley Dept. of Criminalistics headed by Paul Kirk



1932:

FBI Director J. Edgar Hoover opens the FBI Laboratory

1981:

FBI opens Forensic Science Research and Training Center

Federal Crime Laboratories

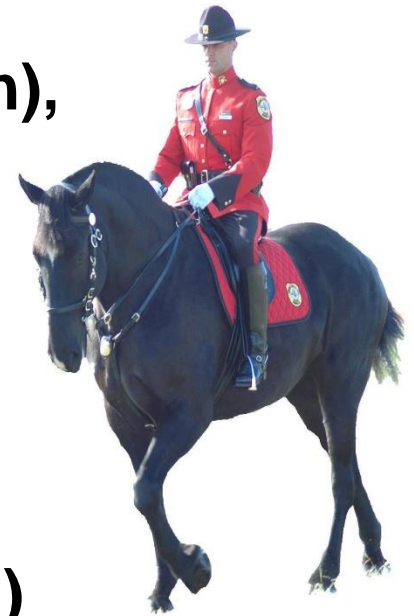
- **FBI Laboratory (Quantico, VA)**
- **Drug Enforcement Administration (DEA) Laboratories**
- **Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) Laboratories**
- **U.S. Army Crime Investigation Laboratory (Fort Gillem, GA)**
- **U.S. Postal Inspection Service Laboratories**



Crime Labs Abroad

- **The British Home Office**

- Metropolitan Police Laboratory (London), a.k.a. “Scotland Yard”
- 5 other regional labs



- **Canada**

- Royal Canadian Mounted Police (RCMP) Laboratories
- Centre of Forensic Sciences (Toronto)
- The Institute of Legal Medicine and Police Science (Montreal)

Resources

- Saferstein, Richard. *Forensic Science: An Introduction*. New Jersey: Pearson Prentice Hall, 2008.
- Bertino, Anthony J. *Forensic Science: Fundamentals and Investigations*. Mason, OH: South-Western Cengage Learning, 2009.
- <http://www.officer.com/publication/article.jsp?pubId=1&id=25192>

Image Sources

- 1) <http://theopinionation.net/blog/wp-content/uploads/2009/06/10-medieval-torture-devices8.jpg>
- 2) <http://www.nndb.com/people/492/000095207/carl-wilhelm-scheele-1-sized.jpg>
- 3) <http://www.all-about-forensic-science.com/alphonse-bertillon.html>
- 4) [http://www.fact-archive.com/encyclopedia/upload/thumb/a/a9/250px-Mathieu Joseph Bonaventure Orfila.jpg](http://www.fact-archive.com/encyclopedia/upload/thumb/a/a9/250px-Mathieu_Joseph_Bonaventure_Orfila.jpg)
- 5) http://img.directindustry.com/images_di/photo-g/polarization-microscope-304081.jpg
- 6) <http://www.historyforkids.org/scienceforkids/biology/cells/pictures/sperm.jpg>
- 7) http://en.wikipedia.org/wiki/File:Marsh_James.jpg
- 8) http://blog.bloodonthemotorway.com/wp-content/uploads/2009/10/Blood_Spatter.jpg
- 9) http://en.wikipedia.org/wiki/File:Marsh_James.jpg
- 10) http://www.gusto-graeser.info/Monteverita/Personen/GrossOtto/Hans_Gross.jpg
- 11) <http://media-2.web.britannica.com/eb-media/75/68975-050-00CBB315.jpg>
- 12) <http://www.osbornandson.com/backgnd.html>
- 13) <http://www.bestforensicsscienceschools.com/2009/top-10-most-famous-forensic-experts-in-history/>
- 14) <http://www.mcri.org/home/section/2-8/dr.-walter-c.-mccrone>