

An Introduction to  
Forensic Science

# Criminalistics

# What is Forensic Science?

- Forensic science is the study and application of science to matters of law.
- You can use the terms forensic science and criminalistics interchangeably.

# Forensic Science defined:

- Forensic Science (or Criminalistics) is the use of science & technology to enforce civil & criminal laws.
- It is vague & hard to define b/c it includes so many other areas of science.

# Civil vs. Criminal Law

## CIVIL LAW

- filed by a private party.
  - a corporation
  - an individual person
- Penalty: a guilty defendant pays the plaintiff for losses caused by their actions.
  - no incarceration

## CRIMINAL LAW

- filed by the government
- Penalty: a guilty defendant is punished by
  - incarceration (in jail/prison)
  - fine paid to the gov't
  - execution (death penalty)
- Crimes are divided into 2 classes:
  - misdemeanors - less than 1 year incarceration
  - felonies - sentence of 1+ year

# History & Development of Forensic Science



# When in Rome...

- “Forensic” comes from the *Latin* word “*forensis*” meaning forum.
- During the time of the Romans, a criminal charge meant presenting the case before the public.
- Both the person accused of the crime & the accuser would give speeches based on their side of the story.
- The individual with the best argumentation would determine the outcome of the case.

# Sir Arthur Conan Doyle

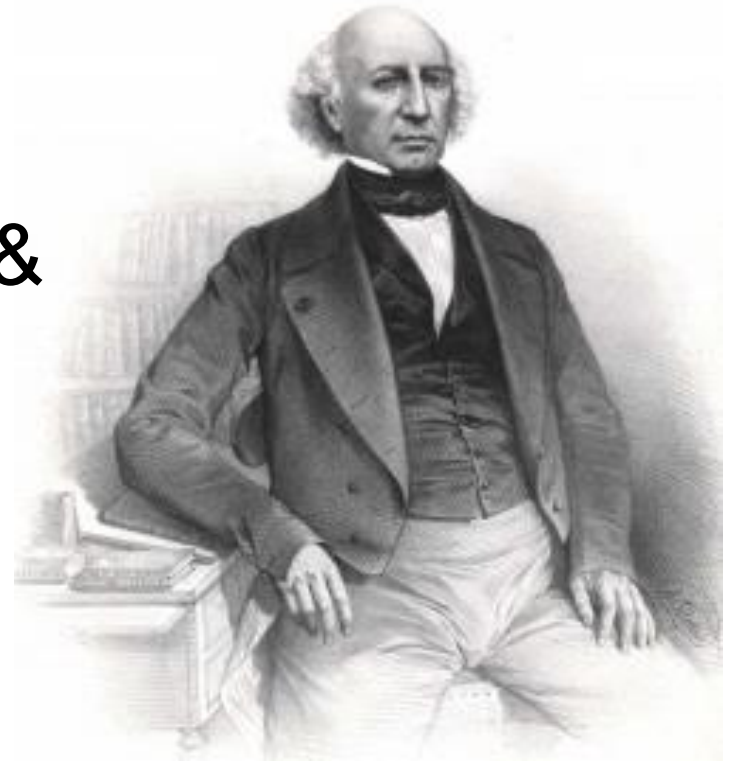
- Sci-fi author in late 1800's
- Popularized scientific crime-detection methods through his fictional character 'Sherlock Holmes'.



# Mathieu Orfila

(1787-1853)

- “Father of Toxicology”
- Wrote about the detection of poisons & their effects on animals.



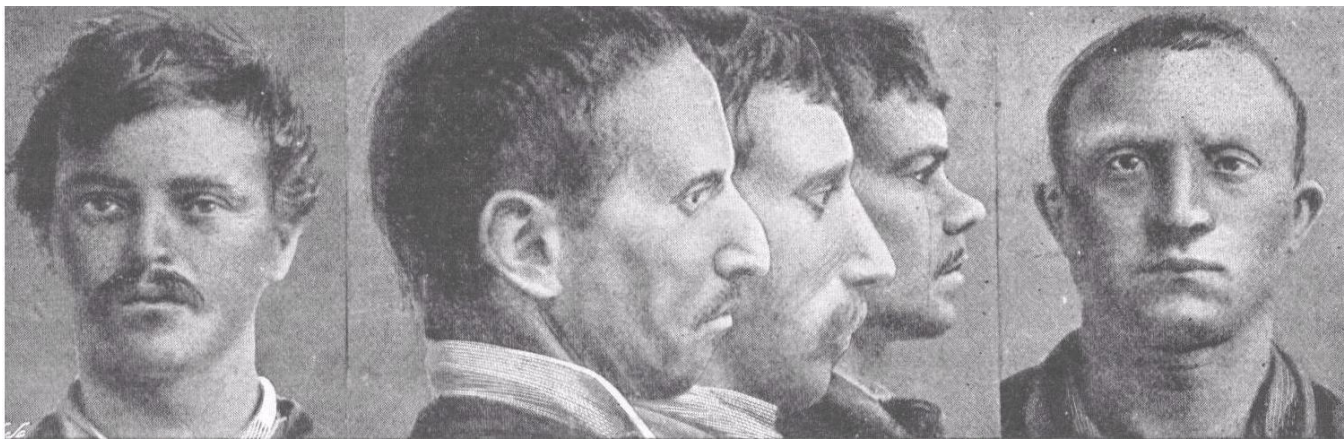


# Alphonse Bertillon

(1853-1914)

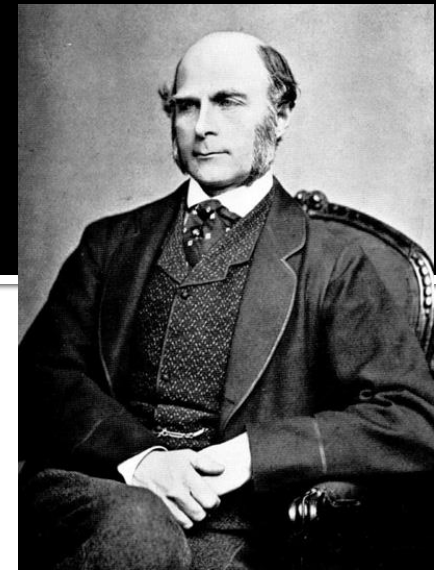


- “Father of Anthropometry”
- Developed a system to distinguish one individual person from another based on certain body measurements.

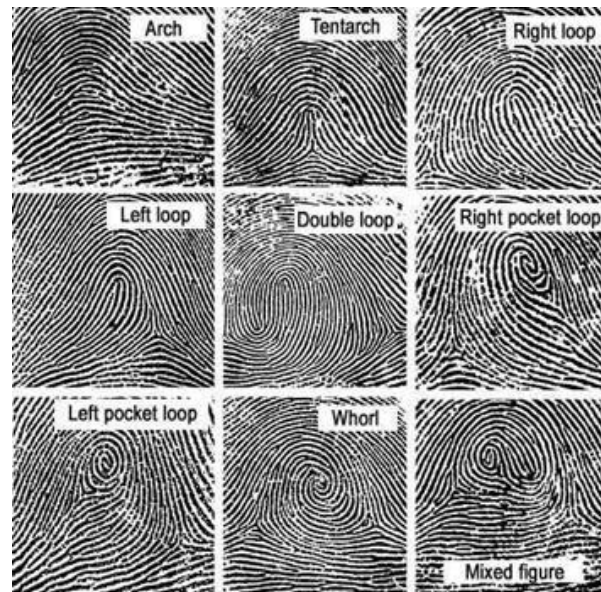


# Francis Galton

(1822-1911)



- “Father of Fingerprinting”
- Developed fingerprinting as a way to uniquely identify individuals.



# Leone Lattes

(1887-1954)

- “Father of Bloodstain Identification”
- He developed a procedure for determining the blood type (A, B, AB, or O) of a dried blood stain.

# Calvin Goddard

(1891-1955)

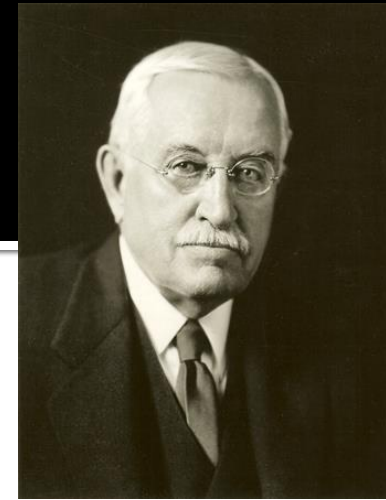


- “Father of Ballistics”
- Developed the technique to examine bullets, using a comparison microscope, to determine whether or not a particular gun fired the bullets.

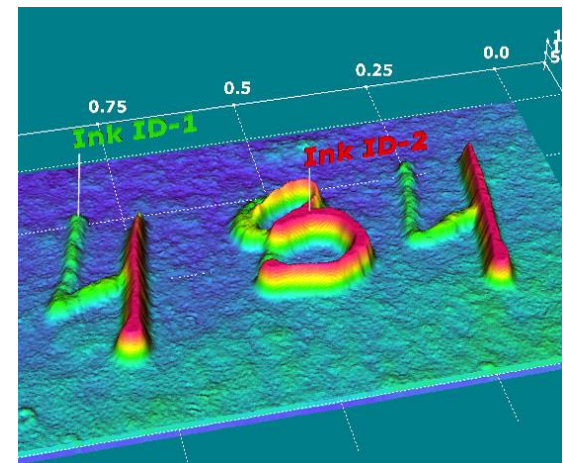
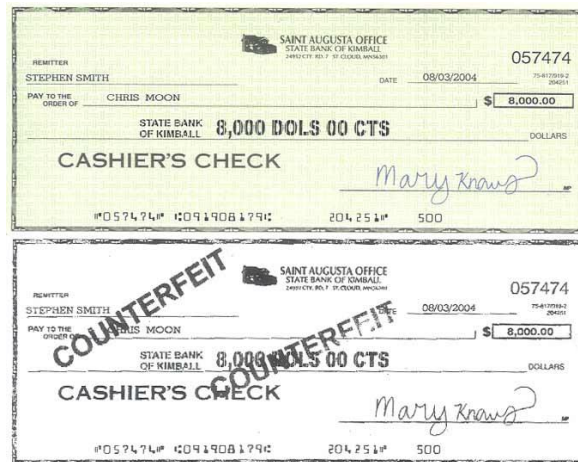


# Albert Osborn

(1858-1946)

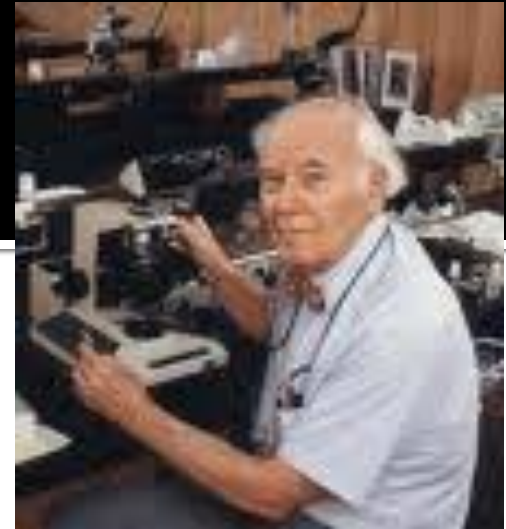


- “Father of Document Examination”
- His work led to the acceptance of documents as scientific evidence by the courts.



# Walter McCrone

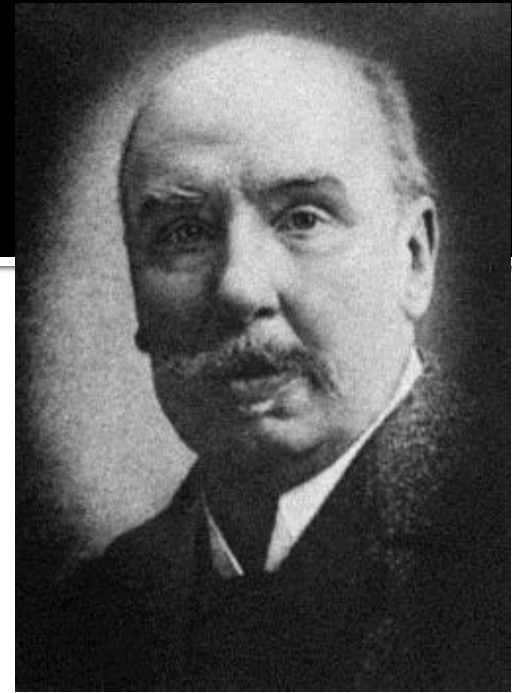
(1916-2002)



- “Father of Microscopic Forensics”
- He developed & applied his microscope techniques to examine evidence in countless court cases.

# Hans Gross

(1847-1915)



- “Father of Forensic Publications”
- Wrote the book on applying all the different science disciplines to the field of criminal investigation.

# Edmond Locard

(1877-1966)

- “Father of the Crime Lab”
- In 1910, he started the 1<sup>st</sup> crime lab in an attic of a police station.
- With few tools, he quickly became known world-wide to forensic scientists & criminal investigators & eventually founded the *Institute of Criminalistics* in France.
- His most important contribution was the “Locard’s Exchange Principle”

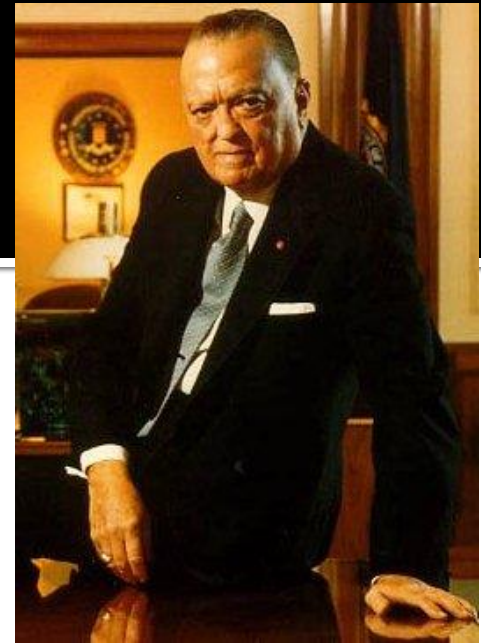




# Locard's Exchange Principle

- “Every Contact Leaves a Trace.”
- He believed that every criminal can be connected to a crime by particles carried from the crime scene.
- When a criminal comes in contact with an object or person, a cross-transfer of evidence occurs.

# J. Edgar Hoover



- “Father of the FBI” - Director of Federal Bureau of Investigation during the 1930’s
- Hoover's leadership spanned 48 yrs & 8 presidential administrations. His reign covered Prohibition, the Great Depression, WWII, the Korean War, the Cold War, & the Vietnam War.
- He organized a national laboratory to offer forensic services to all law enforcement agencies in the U.S.

# The Trial of the Century



- O.J. Simpson *was* a NFL football legend.
- He is now famous for having been tried for the murder of ex-wife Nicole Brown Simpson & her friend Ronald Goldman in 1994.
- He was acquitted in criminal court after a lengthy, highly publicized trial.

# What went wrong?

- 1<sup>st</sup> on the scene, police found evidence of blood & entered the Simpson home without a search warrant, an action permissible b/c the situation was an emergency.
- HOWEVER, the police collected a pair of blood-stained gloves during their search.
- Collection of evidence without proper warrants became the key argument used by Simpson's legal team & ultimately led to his acquittal.

# What was learned?



If forensic evidence is to be admissible in court, the highest professional standards must be used at the crime scene!