

A vintage glass bottle of Fowler's Arsenic Trioxide Dispensary Tablets. The bottle has a red label with gold foil around the edges. The label text includes 'FOWLER'S', '100', 'Dispensary Tablets', 'No. 3', 'ARSENIC TRIOXIDE', '1.00 gm.', and 'Wm. R. Warner & Co.'. The bottle is set against a dark background.

VISIBLE PROOFS: FORENSIC VIEWS OF THE BODY

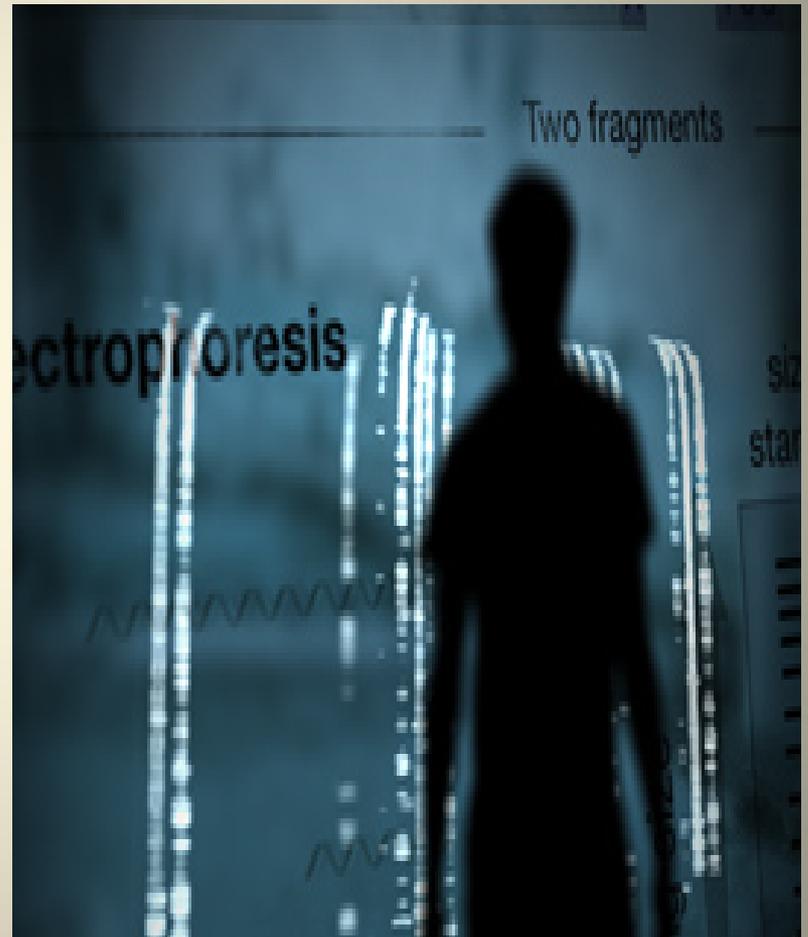
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OBJECTIVES

- To increase familiarity with current forensic science techniques and their historical precursors
- To put past and modern day forensic science within historical and societal context
- To learn about careers in forensic science

WHAT IS FORENSIC MEDICINE?

- Forensic medicine interprets or establishes the facts pertaining to the unexplained or suspicious death or injury of a person in civil or criminal law cases.



THE RISE OF FORENSICS



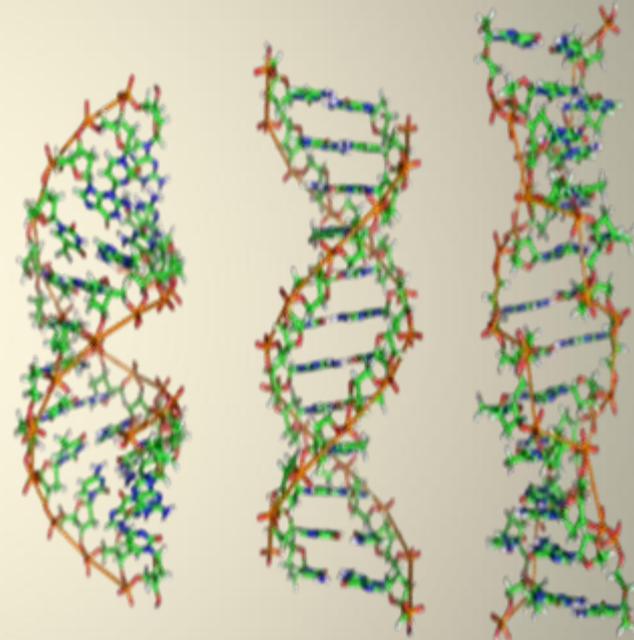
- Forensic medicine emerges in Europe in the 1600s
- By 1700s, forensic medicine taught in med schools and better respected, but still informal and unspecialized

THE RISE OF FORENSICS

- Important advancements in 1800s
 - New scientific techniques incorporated into forensics; leads to career specialties
 - Techniques refined to improve accuracy and reliability; training improved
 - System of choosing coroners (those who examine dead bodies) changes to ensure competency and impartiality; especially in emerging democratic states

THE RISE OF FORENSICS

- Technology and improved scientific understanding of the 1900s and 2000s expand the scope and accuracy of forensics
- Still, many modern techniques have roots in historical forensics



DETERMINING CAUSE AND CIRCUMSTANCES OF DEATH



A VIEW OF THE BODY: AUTOPSY

- Post mortem dissection of dead; used for centuries; historical procedures similar to current ones
- Looks at body's surface and internal structures, removes parts for microscopic inspection and toxicological analysis



A VIEW OF THE BODY: ENTOMOLOGY

- Using the insects that colonize and decompose found on dead bodies, entomologists determine time and manner of death and environment death took place in



A VIEW OF THE BODY: RADIOLOGY

- Radiological techniques allow sciences to get a view of what is hidden inside the body
- X ray, which began being used in the early 1990s, has been invaluable to forensics
- Now, MRI, CT scans, and other technologies are used



LABORATORY VIEWS: TOXICOLOGY

- Scientists use chemistry to detect substances that may have led to harm or death
- Commercially-made poisons available in 1800s; forensic scientists had to learn how to identify poisonings



LABORATORY VIEWS: TOXICOLOGY

- Today, advanced techniques like gas chromatography, a method of separating substances, and mass spectrometry, a method of measuring the mass of molecules are important because of their accuracy



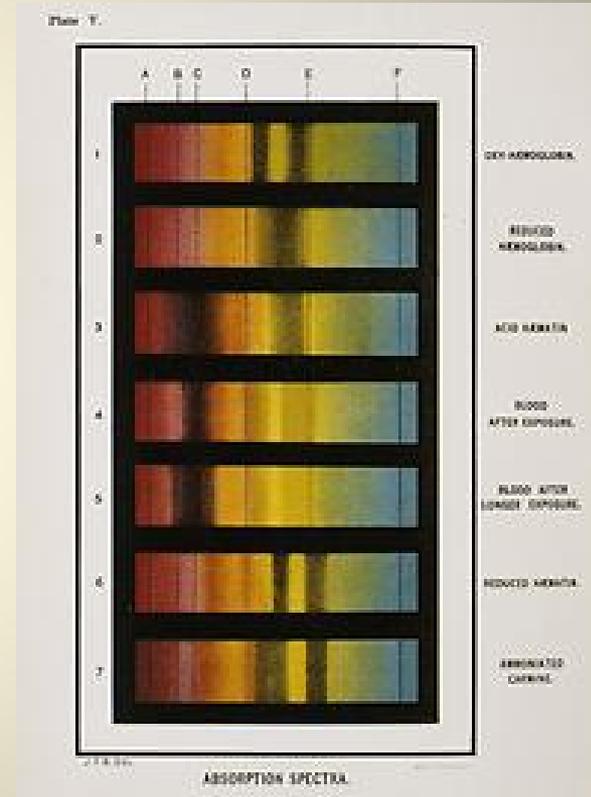
LABORATORY VIEWS: MICROSCOPY

- In 1800s, scientists able to view tiny lesions, crystals, microorganisms, characteristics of hairs and fibers;
- By mid-1900s, scientists could study body parts and fluids; identify poisons



LABORATORY VIEWS: SPECTROSCOPY

- This technique began in 1600s; researchers found that different substances show bands of color when exposed to flame
- Spectrophotometry and mass spectrometry are modern techniques



CRIME SCENE INVESTIGATION AND DOCUMENTATION



DOCUMENTING A CRIME SCENE: BERTILLONAGE

- Urbanization and colonization of late 1800s early 1900s set the stage; to keep tabs on populations, determine citizenship and criminality; elaborate systems of documentation and identification were established



DOCUMENTING A CRIME SCENE: BERTILLONAGE

- The Bertillon System of documentation consisted of photos of crime scenes from different angles, mug shots kept in police records, and extensive measurement of suspects' bodies; all info was organized in a filing system



DOCUMENTING A CRIME SCENE: BERTILLONAGE

- Lots of scientific interest in if body features could determine personality, at the time
- The mug shots of the Bertillon System are still a part of crime scene investigation today, as well as photography; fingerprinting replaced measuring bodies



IDENTIFICATION: FINGERPRINTING

- Fingerprinting used to ID people who had been at the scene of a crime at some point (obviously)
- Fingerprint patterns are identified as either arches, whorls, or loops



IDENTIFICATION: FINGERPRINTING

- Juan Vucetich 1st investigator to use fingerprint evidence in an investigation; devised a fingerprint ID system in Latin America
- E.R. Henry developed the Anglophone fingerprint ID system



IDENTIFICATION: FORENSIC ANTHROPOLOGY



- In addition to giving information about injuries, bones can tell us the biological sex of a person and reveal info about height and weight, race, and other physical characteristics that can be used to ID

IDENTIFICATION: DNA

- DNA is instruction set for the development and living functions for all organisms; because it is unique to each person (except identical twins), and found in a lot of physical remnants of crime (e.g. blood, semen, skin cells, etc.), it

Ruh-roh! Which one did it?



FORENSIC CAREERS

- Pathologist (MD)- Performs autopsies
- Criminalist/Toxicologist (B.S.)- Analyzes evidence using lab science
- Forensic Anthropologist (PhD)- IDs people using bones, helps determine cause of death if signs left on bones
- Multimedia specialist (B.S.)- Examines digital devices and computer networks; uses video and photo to view and analyze crime scene

FORENSIC CAREERS

- Forensic Psychiatrist/psychologist (MD/PhD)-Helps profile criminals and assesses mental health and competency to stand trial
- Odontologist (DDS)- IDs remains using dental records, IDs attackers using bite marks left on the victim, or the victim's bite marks left on the attacker

QUESTIONS?