



Forensic Science: Introduction Continued!

School Year 2021-2022

Class web-site: Wardisiani.com / PowerSchool.com /
PTHS209.Blackboardclassroom.com



Modern Scientific Advances in Forensics

- DNA Typing
- The most significant modern advance in Forensics.
- Sir Alec Jeffreys – DNA Profiling Test (1984)
- DNA Typing is a powerful tool for establishing the precise identification of a suspect, even when small amounts of physical evidence is available.



Computerized Databases

- Fingerprinting
- Bullets and Shell Casings
- DNA

- The development and use of these databases has significantly reduced the time required to analyze evidence and increase accuracy.



Crime Laboratories

- LAPD: Oldest Crime Laboratory in the Country (1923).
- FBI: (1932) J. Edgar Hoover developed the first National Crime Lab.
- Worlds Largest Crime Lab!



Organization of the Crime Lab

- ~400 Public Crime Labs in the US
- Laboratory Staff varies based on size and the type of work being evaluated.



The Growth of Crime Labs

- Supreme Courts Decision (1960's)
 - The scientific collection and evaluation of evidence
 - Increase in US Crime Rates over the past 40 years.
 - War of Drugs
 - Evaluation of ALL Drug Evidence prior to trial.
 - Since the early 1990's DNA Fingerprinting constitutes ~25% of all evidence evaluated in the crime lab.
 - DNA Profiling - CODIS: Combined DNA Index System



Crime Labs in the US

- FBI (Department of Justice)
- DEA (Department of Justice)
- ATF (Department of Justice)
- US Postal Inspection Service

- Each of these facilities offers its expertise to any local agency that REQUESTS assistance



Services of the Crime Lab

- Physical Science Unit: Chemistry, Physics and Geology
- Biology Unit: DNA Profiling on dried bloodstains, bodily fluids, compare hair and fiber and identify botanical materials.
- Firearm Unit: Firearms, discharged bullets, cartridge cases, shells, ammunition and GSR.



Service of the Crime Lab (Cont'd)

- Document Examination:
 - Reviews questioned documents (Evaluates hand written and typing of questionable documents)
- Photography Unit:
 - Examines and records evidence (Photograph, High Resolution Camera and Digital Imaging)
 - Prepare photographs exhibits for trial.



(Cont'd)

- Toxicology Unit:

- Bodily Fluids and Organs to determine the presence of poisons.

- Latent Fingerprints

- Latent (Hidden Fingerprints)

- Polygraph Unit:

- Lie Detector



(Cont'd)

- o **Voiceprint Analysis Unit:**
 - o Threated Calls
 - o Tape or digital recorded messages
 - o Voice Print Analysis

- o **Crime Scene Investigation Unit**
 - o Crime Scene Evidence Collection
 - o Remember....collect NOT evaluate!



Other Forensic Science Services

- Forensic Psychiatry
 - Human Behavior and legal proceeding
 - Evaluate Behavior Disorders
- Forensic Odontology
 - Bite Marks
 - Identification of Human Remains
- Forensic Engineering
 - Failure Analysis
 - Accident Reconstruction

Thanks!

- Comments and Questions
- Refer to the POW for upcoming assignments and experiments 😊

