Criminal Investigation 13th edition Swanson Test Bank

SKU: 9781260836806-TEST-BANK

Correct answers located at the end of the chapter.

TRUE/FALSE - Write 'T' if the statement is true and 'F' if the statement is false.

1) Forensic science draws from diverse disciplines, such as geology, physics, chemistry, biology, and mathematics, to study physical evidence related to crime.
   - ◎ true
   - ◎ false

2) In the late 1800s, "Pinkerton" was the official title for all American government detectives.
   - ◎ true
   - ◎ false

3) The Metropolitan Police headquarters came to be known as "Scotland Yard" because the building formerly had housed Scottish royalty.
   - ◎ true
   - ◎ false

4) After Prohibition was adopted nationally in 1920, the Bureau of Internal Revenue was responsible for its enforcement.
   - ◎ true
   - ◎ false

5) When Prohibition was repealed in 1933, many former bootleggers turned to bank robbery and kidnapping.
   - ◎ true
   - ◎ false

6) The Bureau of Narcotics and Dangerous Drugs (BNDD) was an offshoot organization from the Drug Enforcement Administration (DEA) that was formed to handle national terroristic drug use.
   - ◎ true
   - ◎ false

7) Edmond Benet developed the portrait *parlé* or "speaking picture," which combines full-face and profile photographs of each criminal with their exact body measurements and other descriptive data onto a single card.
   - ◎ true
   - ◎ false

8) DNA is a chemical "blueprint" that determines everything from hair color to susceptibility to diseases.
   - ◎ true
   - ◎ false

9) The Orlando cases set the stage for the first use of DNA in criminal investigations in the United States.
   - ◎ true
   - ◎ false

Criminal Investigation 13th edition Swanson Test Bank

10) In 1913, Professor Balthazard published an article on firearms identification in which he noted that the firing pin, breechblock, extractor, and ejector all leave marks on cartridges, and that they vary among weapons.
- ◎ true
- ◎ false

11) The time it takes for touch DNA to be deposited is constant.
- ◎ true
- ◎ false

12) Currently, the age of a person of interest in a case can be determined by phenotyping.
- ◎ true
- ◎ false

MULTIPLE CHOICE - Choose the one alternative that best completes the statement or answers the question.

13) The first modern detective force was
- A) the Bow Street Runners.
- B) established by the Metropolitan Police Act of 1829.
- C) created by Patrick Colquhoun.
- D) the London Metropolitan Police.

14) The London Metropolitan Police was established in 1829. At first, the British public was suspicious of, and at times even hostile toward, it because
- A) they often mistook the police for thieves during the night-time.
- B) the peaceful agricultural population had no need for policing.
- C) social reformers such as Jeremy Bentham had long argued that it was a danger to personal liberty.
- D) French citizens had experienced oppression under centralized police.

15) In 1833,_____ passed an ordinance creating America's first paid, daylight police force.
- A) Philadelphia
- B) Chicago
- C) New York City
- D) Baltimore

16) Which of the following is a reason for the absence of reliable detectives in America during the 1800's?
- A) Graft and corruption were common among America's big city police officers.
- B) Police jurisdictions were limited.
- C) There was little information sharing by law enforcement agencies.
- D) All of the answers are correct.

Criminal Investigation 13th edition Swanson Test Bank

17) Which city was the first to create a unified police force in the United States?
   A) New Orleans
   B) New York
   C) Baltimore
   D) Philadelphia

18) After the Civil War, Pinkerton's National Detective Agency engaged in the two broad areas of
   A) locating war criminals and investigating the KKK.
   B) protecting members of Congress and the Supreme Court.
   C) following up on initial reports of interstate crimes and locating offenders who fled to a foreign country.
   D) controlling a discontented working class and pursuing bank and railroad robbers.

19) What municipal agency was the first to establish a Criminal Identification Bureau?
   A) Chicago
   B) Atlanta
   C) Philadelphia
   D) New Orleans

20) Which of the following statements about a rogues' gallery is true?
   A) It is only practical in cities with populations of 100,000 or more.
   B) It consists of photographs of known criminals arranged by criminal specialty and height.
   C) Its use was abandoned because of the cost of maintaining it.
   D) All of the answers are correct.

21) What was the original mission of the U.S. Secret Service when created by Congress in 1865?
   A) combating counterfeiting
   B) providing protection for the President
   C) preventing drug importation into the country
   D) All of the answers are correct.

22) Which agency was the prototype for modern state police organizations?
   A) New York State Police
   B) Georgia State Police
   C) Pennsylvania State Police
   D) Pinkerton International Detective Agency

Criminal Investigation 13th edition Swanson Test Bank

23) The Harrison Act of 1914 made the distribution of nonmedical drugs a crime. The agency currently charged with enforcing its provisions is the_____.
   A) Federal Bureau of Investigations
   B) Narcotics Bureau
   C) Drug Enforcement Administration
   D) Bureau of Narcotics and Dangerous Drugs

24) During 1961-1966, the U.S. Supreme Court became unusually active in hearing cases involving the rights of criminal suspects and defendants. This period is referred to as the_____.
   A) radical court era
   B) leftist court decisions
   C) due process revolution
   D) ex-post-facto period

25) Who wrote the first major book describing the application of scientific disciplines to criminal investigation in 1893?
   A) Hans Gross
   B) Edmond Locard
   C) Alphonse Bertillon
   D) Leon Czolgosz

26) An early method of criminal identification was based on the thought that every human being differs from every other one in the exact measurements of their body. Also, the sum of those measurements was thought to yield a characteristic formula for each individual. What was this method of criminal identification?
   A) dactylography
   B) ectomorphism
   C) anthropometry
   D) accutron

27) The father of criminal identification is
   A) Hans Gross.
   B) Alphonse Bertillon.
   C) Edward Henry.
   D) William Herschel.

28) Prior to the adoption of Edward Henry's fingerprint system in England in 1990, it was in use in_____.
   A) Germany
   B) Nepal
   C) China
   D) British India

29) In 1892, who published the first definitive book on dactylography, *Finger Prints?*
   A) Sir Francis Galton
   B) Henri Lacassagne
   C) Henry Balthazard
   D) Calvin Goddard

Criminal Investigation 13th edition Swanson Test Bank

30) There was rivalry between partisans of the two classification systems developed by Edward Henry and_____ regarding the superiority of their respective fingerprint identification systems.
A) Henry Goddard
B) Daniel Nolan
C) Joseph Faurot
D) Juan Vucetich

31) In 1985, research by_____ and his colleagues at Leicester University, England, led to the discovery that portions of the DNA structure of certain genes are as unique to individuals as are fingerprints.
A) James Watson
B) Dawn Ashworth
C) Francis Crick
D) Alec Jeffreys

32) What is the significance of the *Enderby* cases?
A) They questioned the scientific validity of fingerprint evidence.
B) Those trials were the first use of "voice prints" to convict a criminal.
C) The precedent of using DNA in a criminal case was established.
D) None of the answers is correct.

33) The 1992 palo verde seedpod case is significant because it
A) excluded case evidence because of police misuse of plant pathology procedures.
B) involved the use of plant DNA in a criminal case.
C) established the scientific basis for identifying suspects from their fingerprints on flora.
D) None of the answers is correct.

34) Who made the first successful attempt to identify a murderer from a bullet recovered from the body of a victim?
A) Paul Jeserich
B) Henri Lacassagne
C) Henry Balthazard
D) Henry Goddard

35) _____is considered most responsible for raising firearms identification to a science and for perfecting the bullet comparison microscope.
A) Paul Jeserich
B) Henri Lacassagne
C) Henry Balthazard
D) Calvin Goddard

Criminal Investigation 13th edition Swanson Test Bank

36) Leone Lattes developed a procedure that
A) suggested an eye iris might have characteristics for individual identification.
B) established when DNA was left on an object recovered from a crime scene.
C) allowed evidence gathered from touch DNA to be preserved for over a span of 10 years.
D) permitted blood typing from a dried bloodstain.

37) Identify a true statement about touch DNA. It
A) helps determine how an object was used.
B) analysis of it is only successful in 5 percent of all cases.
C) does not leave a visible residue.
D) cannot be accumulated.

38) Which of the following provides a genomic-based, probabilistic estimation of the image of a person of interest?
A) DNA phenotyping
B) dactylography
C) biometrics
D) None of the answers is correct.

FILL IN THE BLANK. Write the word or phrase that best completes each statement or answers the question.

39) The efforts of_____ led to the establishment of the London Metropolitan Police in 1829.

40) The fact that microbial communities live and die in a predictable fashion allows forensic science to reliably estimate the_____ of a body within 2 to 4 days over 25 days of decomposition.

41) The major private detective agency of the 19^{th} century was formed by_____.

42) To supplement the rogues' gallery, Thomas Byrnes instituted the

43) In 1967 the_____ was made operational by the Federal Bureau of Investigation, providing data on wanted persons and property stolen from all 50 states.

44) Locard established the first_____ in Lyon in 1910.

45) All crime scenes are searched on the basis of Locard's_____, which asserts that when perpetrators come into contact with the scene, they will leave something of themselves and take away something from the scene.

46) The first foreigner trained in the use of the Henry classification system was New York City Detective Sergeant_____ in 1904.

Criminal Investigation 13th edition Swanson Test Bank

47) The_____ cases involved testing blood samples from about 5,500 men living in the area in an attempt to identify a rape suspect.

48) _____helped produce the first workable polygraph in 1921 and established America's first full forensic laboratory in Los Angeles in 1923.

49) _____refers to the measurable and automated physiological or behavioral characteristics that can be used to verify the identity of an individual.

ESSAY. Write your answer in the space provided or on a separate sheet of paper.

50) Who were the Bow Street Runners, and what is their historical importance?

51) What parallels can be drawn between Allan Pinkerton and J. Edgar Hoover?

52) What did the "due process revolution" and subsequent Supreme Court decisions change with respect to the police?

53) Why does the Henry classification enjoy greater use than Vucetich's system?

54) What are seven different human sources of DNA material;?

Criminal Investigation 13th edition Swanson Test Bank

Answer Key

Test name: Chapter 01

1) TRUE
2) FALSE
3) TRUE
4) TRUE
5) TRUE
6) FALSE
7) FALSE
8) TRUE
9) TRUE
10) TRUE
11) FALSE
12) FALSE
13) A
14) D
15) A
16) D
17) B
18) D
19) A
20) B
21) A
22) C
23) C
24) C
25) A
26) C
27) B
28) D
29) A
30) D
31) D
32) C
33) B
34) D
35) D
36) D
37) C
38) A
39) Sir Robert Peel
40) postmortem interval
41) Pinkerton
42) Mulberry Street Morning Parade
43) National Crime Information Center
44) forensic laboratory
45) exchange principle
46) Faurot
47) Enderby
48) Vollmer
49) Biometrics
50) Essay
51) Essay
52) Essay
53) Essay
54) Essay

Criminal Investigation 13th edition Swanson Test Bank

Chapter 1
The Evolution of Criminal Investigation and Forensic Science

Learning Objectives

1. Define investigator.
2. Define the most fundamental purpose of investigation.
3. State four additional objectives of the investigative process.
4. Explain the importance of the Bow Street Runners.
5. Discuss the contribution of Sir Robert Peel's reform to early policing in the United States.
6. Explain the history and contributions of the Pinkerton National Detective Agency.
7. Identify the first major federal investigative agencies and their responsibilities.
8. Explain the Supreme Court's "due process revolution" and its impact on policing.
9. Discuss Bertillon's method of anthropometry.
10. Summarize the historical development of fingerprint identification.
11. Explain touch DNA.
12. Describe DNA Phenotyping.

Introduction

An **investigator** is someone who systematically gathers, documents, and evaluates evidence and information. This is accomplished through the process of investigation. The most fundamental purpose of criminal investigation and forensic science is to discover the truth. By making this purpose the cornerstone of their behavior, investigators can remain faithful to their oath of office and the accompanying ethical standards. Four additional objectives of the investigative process are to (1) establish that a crime was actually committed; (2) identify and apprehend the suspect(s); (3) recover stolen property; and (4) assist in the prosecution of the person(s) charged with the crime.

Lecture Notes

I. Jurisdiction

The authority of law enforcement officers is limited by such factors as the Constitution, court decisions, federal and state laws, departmental policies, and jurisdiction, which can be thought of

© McGraw Hill LLC. All rights reserved. No reproduction or distribution without the prior written consent of McGraw Hill LLC.

Criminal Investigation 13th edition Swanson Test Bank

as both a *geographic area* and the laws for which an agency has *enforcement responsibility.*

II. Criminal Investigation and Forensic Science

For present purposes, the roots of criminal investigation can be traced back to England in the eighteenth century, a period marked by significant social, political, and economic changes. These changes were important to the development of the first modern detective force, the **Bow Street Runners**.

Forensic science draws from diverse disciplines, such as geology, physics, chemistry, biology, and mathematics, to study physical evidence related to crime.

III. The Evolution of Criminal Investigation

A. The Impact of the Agricultural and Industrial Revolutions

During the eighteenth century, two events—an agricultural revolution and an industrial revolution—began a process of change that profoundly affected how police services were delivered and how investigations were conducted. Townshend's crop rotation system and Jethro Tull's four-bladed plow, gave England increased agricultural productivity in the first half of the eighteenth century. Improvements in agriculture were essential preconditions to the Industrial Revolution in the second half of the eighteenth century because they freed people from farm work for city jobs.

B. The Fieldings: Crime Information and the Bow Street Runners

In 1748, **Henry Fielding** became chief magistrate of Bow Street and set out to improve the administration of justice. In 1750, he established a small group of volunteers, non-uniformed homeowners to "take thieves." Known as the "**Bow Street Runners**," these Londoners hurried to the scenes of reported crimes and began investigations, thus becoming the first modern detective force.

On his death in 1754, Henry Fielding was succeeded by his blind half-brother, **John Fielding,** who carried on Henry's ideas for another 25 years.

C. The Metropolitan Police Act of 1829

In 1816, 1818, and again in 1822, England's Parliament rejected proposals for a centralized professional police force for London as different political philosophies clashed. Finally, in 1829, owing in large measure to the efforts of **Sir Robert Peel**, Parliament passed the

© McGraw Hill LLC. All rights reserved. No reproduction or distribution without the prior written consent of McGraw Hill LLC.

Criminal Investigation 13th edition Swanson Test Bank

Metropolitan Police Act, which created a metropolitan police force for London. Police headquarters became known as "Scotland Yard" because the building formerly had housed Scottish royalty. Police constables were referred to as "**Bobbies**," a play on Peel's first name. Despite the growing popularity of the uniformed Bobbies, however, there was fear that the use of "**police spies**"—detectives in plain clothes—would reduce civil liberties.

Illustratively, in 1833, a **Sergeant Popay** was dismissed following a parliamentary investigation that revealed that he had infiltrated a radical group, acquired a leadership position, and argued for the use of violence. In 1842, a regular detective branch was opened at **Scotland Yard**, superseding the Bow Street force.

D. American Initiatives

The success of Peel's reform in England did not go unnoticed in the United States. **Stephen Girard** (1750–1831) bequeathed $33,190 to Philadelphia to develop a competent police force. In 1833, Philadelphia passed an ordinance creating America's first paid, daylight police force.

In the mid-1800s, many cities treated the day and night police as entirely different departments. Before the mid-1800s, few American cities had police ser vice, and those that existed were inadequate. Many cities had paid police departments only at night or treated day and night police services as entirely separate organizations. In 1844 the New York state legislature created the first unified police force in the country, although New York City did not actually implement the measure until a year later. Other cities rapidly followed New York's lead.

E. Pinkerton's National Detective Agency

In 1846, seeing the need for reliable investigators, two former St. Louis police officers formed the first recorded private detective agency. However, the major private detective agency of the nineteenth century was formed by **Allan Pinkerton** (1819–1884).

F. The Emergence of Municipal Detectives

As early as 1845, New York City had 800 plainclothes officers, although not until 1857 were the police authorized to designate 20 patrol officers as detectives. In November 1857, the New York City Police Department set up a **rogues' gallery**—photographs of known offenders arranged by criminal specialty and height—and by June 1858, it had over 700 photographs for detectives to study so that they might recognize criminals on the street.

In 1886, Thomas Byrnes, the dynamic chief detective of New York City, published

© McGraw Hill LLC. All rights reserved. No reproduction or distribution without the prior written consent of McGraw Hill LLC.

Criminal Investigation 13th edition Swanson Test Bank

Professional Criminals in America, which included pictures, descriptions, and the methods of all criminals known to him. To supplement the rogues' gallery, Byrnes instituted the **Mulberry Street Morning Parade.** At 9 o'clock every morning, all criminals arrested in the past 24 hours were marched before his detectives, who were expected to make notes and to recognize the criminals later.

G. Federal and State Developments

From its earliest days, the federal government employed investigators to detect revenue violations, but their responsibilities were narrow and their numbers few. In 1865, Congress created the U.S. Secret Service to combat counterfeiting. In 1903—two years after President McKinley was assassinated by Leon Czolgosz in Buffalo—the previously informal arrangement of guarding the president was made a permanent Secret Service responsibility. In 1905, the California Bureau of Criminal Identification was set up to share information about criminal activity, and Pennsylvania governor Samuel Pennypacker signed legislation creating a state police force. Widely regarded then by labor as "strikebusters on management's side," the Pennsylvania State Police nevertheless was the prototype for modern state police organizations. In 1908 U.S. Attorney General Charles Bonaparte created the embryo of what was later to become the Federal Bureau of Investigation (FBI) when he ordered that investigations were to be handled by a special group. During the Depression, some people saw John Dillinger, "Pretty Boy" Floyd, and Bonnie and Clyde "as plain folks" and did not grieve over a bank robbery or the kidnapping of a millionaire. Given the restricted roles of other federal investigative agencies, it became the FBI's role to deal with these criminals.

In 1932, the FBI established a crime laboratory and made its services available free to state and local police. In 1935, it started the **National Academy,** a training course for state and local police. In 1967, the **National Crime Information Center (NCIC)** was made operational by the FBI, providing data on wanted persons and property stolen from all 50 states.

In 1968, some consolidation of effort was achieved with the creation of the Bureau of Narcotics and Dangerous Drugs (BNDD) in the Department of Justice and in 1973, with the creation of its successor, the **Drug Enforcement Administration (DEA).**

H. The Police and the U.S. Supreme Court

As the highest court in this country, the Supreme Court is obligated to review cases and to make decisions that often have considerable impact. From 1961 to 1966, a period known as the "due process revolution," the Supreme Court became unusually active in hearing cases involving the rights of criminal suspects and defendants.

© McGraw Hill LLC. All rights reserved. No reproduction or distribution without the prior written consent of McGraw Hill LLC.

Criminal Investigation 13th edition Swanson Test Bank

IV. Historical Milestones of Forensic Science

The origins of criminalistics or forensic science are largely European. The first major book describing the application of scientific disciplines to criminal investigation was written in 1893 by **Hans Gross,** a public prosecutor and later a judge from Graz, Austria. The Frenchman **Edmond Locard** established the first forensic laboratory in Lyon in 1910.

A. Three Historical Biometric Methods of Personal Identification

In the early 1900s, biometry and **biometrics** referred to methods of analyzing biological data. *Biometrics* is derived from Greek and means "life measurement." In forensic science, there are three historical biometric approaches to establish individual identity: (1) anthropometry, (2) dactylography, and (3) deoxyribonucleic acid (DNA) typing.

Anthropometry was developed by **Alphonse Bertillon** (1853–1914), who is rightly regarded as the father of criminal identification. The first method of criminal identification that was thought to be reliable, **anthropometry** "was based on the fact that every human being differs from every other one in the exact measurements of their body and that the sum of these measurements yields a characteristic formula for each individual."

Dactylography is the study of fingerprints. In a scientific context, in 1684 in England, Dr. Nehemiah Grew first called attention to the system of pores and ridges in the hands and feet. Just two years later, Marcello Malpighi made similar observations. In 1823, John Perkinje, a professor at the University of Breslau, named nine standard types of fingerprint patterns and outlined a broad method of classification. Despite these early stirrings, it was not until 1900 that a country, England, used dactylography as a system of criminal identification.

Beginning in 1858, William Herschel, a British official in India, requested the palm prints and fingerprints of those with whom he did business, thinking that it might awe people into keeping agreements. Over the next 20 years, Herschel noted from his records that the patterns of the lines on the fingerprints never changed for an individual. Excited by the prospects of applying this knowledge to the identification of criminals, Herschel wrote in 1877 to the inspector general of the prisons of Bengal. The reply made it clear that the inspector general was not interested. Henry Faulds, a Scottish physician at the Tsukiji Hospital in Tokyo, had been interested in fingerprints for several years before 1880. When a thief left a sooty print on a whitewashed wall, Faulds was able to tell that the person in police custody was not the thief and to match another suspect's fingerprints with those on the wall. Faulds reported his findings in the journal *Nature* in 1880. Herschel read the account and published a reply, claiming credit for the discovery over 20 years before. A controversy broke out that was never

© McGraw Hill LLC. All rights reserved. No reproduction or distribution without the prior written consent of McGraw Hill LLC.

Criminal Investigation 13th edition Swanson Test Bank

resolved to anyone's satisfaction.

In 1888, **Sir Francis Galton** (1822–1911) turned his attention to criminal identification. In 1892, Galton published the first definitive book on dactylography, *Finger Prints.* It presented statistical proof of the uniqueness of fingerprints and outlined many principles of identification by fingerprints. In Argentina, in 1894, **Juan Vucetich** (1858–1925) published *Dactiloscopia Comparada,* outlining his method of fingerprint classification. In 1892, a disciple of Vucetich's, Inspector Alvarez, obtained South America's first criminal conviction based on fingerprints by using Vucetich's system to convict a woman of beating her two children to death.

The final breakthrough for the fingerprint method of personal identification was made by **Edward Henry.** Henry developed an interest in fingerprints and instituted Bertillon's system with the addition of fingerprints to the cards.

In 1904, New York City Detective Sergeant Joseph Faurot was sent to England to study fingerprints, becoming the first foreigner trained in the use of the Henry classification system. In 1906, Faurot arrested a man dressed in formal evening wear but not wearing shoes, as the man crept out of a suite in the Waldorf-Astoria Hotel. Claiming to be a respectable citizen named "James Jones," the man demanded to see the British consul and threatened Faurot with nasty consequences. Faurot sent the man's fingerprints to Scotland Yard and got back a reply that "James Jones" was actually Daniel Nolan, who had 12 prior convictions of hotel thefts and who was wanted for burglarizing a home in England.

Despite the fame achieved by Faurot, the most important incident to advance the use of fingerprints in this country was the ***West case***. In 1903, Will West arrived at the U.S. penitentiary at Leavenworth, Kansas. While West was being processed in through identification, a staff member said that there was already a photograph and Bertillon measurements for him on file. But a comparison of fingerprints showed that despite identical appearances and nearly identical Bertillon measurements, the identification card on file belonged to a William West, who had been in Leavenworth since 1901. The incident accelerated the recognition that fingerprints were superior to anthropometry as a system of identification.

Vucetich's book on fingerprint classification was published in 1894, seven years before Henry's, but Henry's system has become much more widely used. In 1911 the provincial government of Buenos Aires passed a law requiring fingerprint registration for all adults subject to military service and eligible to vote. When Buenos Aires planned an expansion of fingerprint registration, there were strong protests. In contrast, Henry became the head of what was then the world's most prestigious police organization and enjoyed the support of his

© McGraw Hill LLC. All rights reserved. No reproduction or distribution without the prior written consent of McGraw Hill LLC.

Criminal Investigation 13th edition Swanson Test Bank

government.

Although **deoxyribonucleic acid (DNA)** was discovered in 1868, scientists were slow to understand its role in heredity. This DNA is a chemical "blueprint" that determines everything from hair color to susceptibility to diseases. The first use of DNA in a criminal case was in 1987 in England. In 1983, Lynda Mann, age 15, was raped and murdered near the village of **Enderby**. During 1986, a series of rapes and assaults occurred in Orlando, Florida, that resulted in the first use of DNA in criminal investigation cases in the United States.

In 1988, the FBI became the first public-sector crime laboratory in the United States to accept cases for DNA analysis. Although DNA analysis of blood and other evidence from humans in criminal investigation cases is widely understood and used, there was no application of "genetic fingerprinting" to plant evidence in criminal cases until the 1992 **palo verde seedpod case** in Phoenix, Arizona.

B. Firearms Identification

In the United States, the frequency of shootings has made firearms identification extremely important. As a specialty within forensic science, firearms identification extends far beyond the comparison of two fired bullets. It includes identification of types of ammunition, knowledge of the design and functioning of firearms, restoration of obliterated serial numbers on weapons, and estimation of the distance between a gun's muzzle and a victim when the weapon was fired.

In 1835, **Henry Goddard,** one of the last of the Bow Street Runners, made the first successful attempt to identify a murderer from a bullet recovered from the body of a victim.

Calvin Goddard (1858–1946), a U.S. physician who had served in the army during World War I, is the person considered most responsible for raising firearms identification to a science and for perfecting the bullet comparison microscope.

C. Other Early Contributors

There are many other early contributors to the evolution of investigation and forensic science. For example, in 1910, **Albert Osborn** (1858–1946) wrote *Questioned Documents*, which is still regarded as a definitive work. **Leone Lattes** (1887–1954) developed a procedure in 1915 that permits blood typing from a dried bloodstain, a key event in forensic serology. Although more an administrator and innovator than a criminalist, **August Vollmer** (1876–1955), through his support, helped **John Larson** produce the first workable polygraph in 1921.

© McGraw Hill LLC. All rights reserved. No reproduction or distribution without the prior written consent of McGraw Hill LLC.

Criminal Investigation 13th edition Swanson Test Bank

In 1935, **Harry Soderman** and **John O'Connell** coauthored *Modern Criminal Investigation,* the standard work for the field for decades until the publication of *Crime Investigation* by **Paul Kirk** in 1953.

V. The Continuing Evolution of Criminal Investigation and Forensic Science

Science continues to provide tools for criminal investigation and forensic science, enhancing existing capabilities and creating new ones.

A. Touch DNA at 20

Despite the great usefulness innovations provide, there are often accompanying unintended side effects, an example of this is **touch DNA.** In 1997, it was established that items a suspect handled could yield sufficient DNA for analysis. Touch DNA serves to exonerate some and help prosecute others. Demands for touch DNA analysis quickly accumulated because a suspect could have touched many possible items at a crime scene. As a result of numerous and also indiscriminate requests for touch DNA analysis, backlogs quickly grew, creating a need to set priorities. In response to this situation, crime labs developed policies that limited the conditions under which they would honor such cases; for example, they would only accept those involving violent crimes or when there was no other means of obtaining probative evidence that could prove a major case.

B. The Perils of Touch DNA

Although touch DNA is science, its use is not without perils and it is not infallible. Touch DNA can also be accidentally transferred, resulting in wasteful misdirection of investigations and creating the potential for grievous injustices. Around 2015, secondary transfers of touch DNA garnered more attention from forensic scientists. An unreplicated 2016 study claims that it is possible to distinguish in a majority of cases between primary and secondary DNA deposits on items. Presently, there is significant concern that secondary and even subsequent DNA transfers could have been a key factor in the conviction of innocent persons.

C. The New Biometrics

Historically, biometrics was thought of narrowly, with a tight focus on measurements limited to those taken from the body itself. *Biometrics* is now defined as the measurable and automated physiological or behavioral characteristics that can be used to verify the identity of an individual. The FBI established a Biometric Center of Excellence to explore and advance biometric technologies and capabilities.

© McGraw Hill LLC. All rights reserved. No reproduction or distribution without the prior written consent of McGraw Hill LLC.

Criminal Investigation 13th edition Swanson Test Bank

D. Forensic Phenotyping

Essentially, a forensic DNA phenotyping (FDP) is a twenty-first century composite sketch of a person of interest. Where DNA analysis can lead to the individual identification of the perpetrator**, DNA phenotyping** provides a genomic-based, probabilistic estimation of the image of a person of interest. FDPs can estimate the likely face shape, hair color, skin pigmentation, iris color, freckling, and adult height with accuracy rates approaching a combined 70%, although one company claims a combined 80%. There could be a reluctance to use FDP because it may appear to be a variant of racial profiling in terms of its ancestry component, which could seem to be unfairly targeting minority and immigrant populations.

E. Microbial Communities

Forensic scientists have taken note of the ubiquitous microbes and have begun studying how they might be helpful to investigations. A recent and joint study involving the University of Colorado Boulder and the University of California-San Diego established that **microbial communities** tick along in a predictable, clocklike succession following death. Microbial communities may also be useful in determining if a body was moved from its original resting place to another location.

© McGraw Hill LLC. All rights reserved. No reproduction or distribution without the prior written consent of McGraw Hill LLC.

Criminal Investigation 13th edition Swanson Test Bank