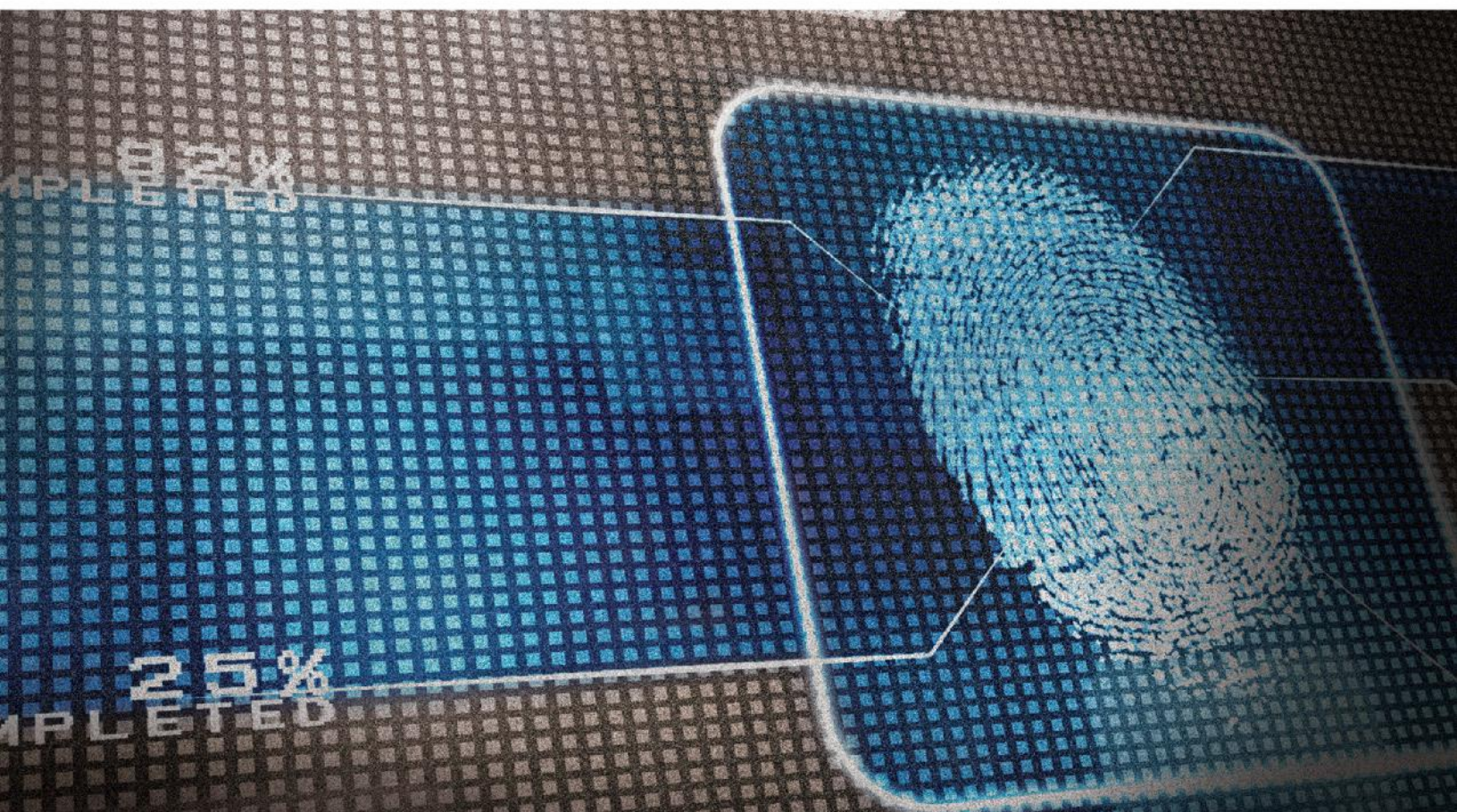


CRIMINAL INVESTIGATION

Third Edition



Michael D. Lyman

CRIMINAL INVESTIGATION

third edition

Michael D. Lyman

Columbia College of Missouri



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Dedication

*This book is dedicated to
the most important people
in my life, my wife Julie and
my daughter Kelsey, who
have offered their continual
support of me in the
painstaking preparation of
this book. Their
understanding of this
considerable undertaking
played no small role in this
book's successful
completion.
Thanks, guys.*

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Preface

This Book's Theme

This book is now in its third edition. It is intended to meet the needs of students and others interested in criminal justice by presenting information in an easy-to-read, logical flow, paralleling the steps and considerations observed in an actual criminal investigation. Additionally, it is designed to fulfill an ongoing need for an abbreviated book that explains clearly and thoughtfully the fundamentals of criminal investigation as practiced by police investigators on the job in communities across the nation.

The book is written with several observations in mind. First, it is designed to blend scientific theories of crime detection with a practical approach to criminal investigation. Its underlying assumption is that sound criminal investigations depend on an understanding of the science of crime-detection procedures and the art of anticipating human behavior. There is yet another critical observation made in the book: It recognizes that both the uniformed officer and the criminal investigator play important roles in the field of criminal investigation. The duties of each are outlined throughout the book, recognizing that there is a fundamental need for both to work in tandem throughout many aspects of the criminal investigation process.

Another underlying theme of the book is that, as with all police endeavors, criminal investigation is a law enforcement responsibility that must be conducted within the framework of the U.S. Constitution and the practices of a democratic society. Consequently, court decisions and case studies have been quoted extensively for clarification of issues and general reader information.

Additional Highlights to the Author's Approach

- A 16-chapter format specifically designed to enable the instructor to cover the entire book in a standard semester

and to enable the student to read without being pressured to cover numerous chapters in a short period of time

- An enhanced graphical interface affording the student an additional venue for learning
- Recent and meaningful case studies that begin and end each chapter
- Boxed features specifically designed to allow the student to consider how chapter material applies to the real world of criminal investigation
- A dedicated chapter on terrorism and the investigation of such crimes
- Coverage of the latest investigative methods for dealing with eyewitness testimony, missing and abducted persons, computer/Internet crime, and other “hot-button” issues in criminal investigation

New to This Edition

- Updated case studies
- Updated statistics
- More detail about crime-scene searches and evidence
- Learning outcomes identified throughout each chapter
- New graphics throughout the book
- Refreshed “Think About It” sections in each chapter
- New and refreshed photos and informational boxes throughout the book
- Revised “Learning Outcomes” at the end of each chapter

► Instructor Supplements

- **Instructor's Manual with Test Bank.** Includes content outlines for classroom discussion, teaching suggestions, and answers to selected end-of-chapter questions from the text. This also contains a Word document version of the test bank.
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- **PowerPoint Presentations.** Our presentations offer clear, straightforward outlines and notes to use for class lectures or study materials. Photos, illustrations, charts, and tables from the book are included in the presentations when applicable.

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► Acknowledgments

No book can be

written entirely as a solo effort, and this project was no exception. The preparation of the third edition represents hundreds of painstaking hours maintaining continuous contact with criminal justice agencies, federal information clearinghouses, police practitioners, and colleagues in the field of criminal justice. In addition, to offer the reader the most up-to-date and relevant information, it was important to consult libraries, police journals, periodicals, newspapers, government publications, and other sources of literature germane to the field of crime detection on an ongoing basis.

Many persons were helpful in the preparation of this book, including practitioners in the field as well as experts in academe. Among these, the contributions of certain persons deserve special recognition. Included are the men and women of the Missouri State Highway Patrol, agents from the Federal Bureau of Investigation and Drug Enforcement Administration, contributors from the Department of Homeland Security and the International Association of Chiefs of Police.

A special debt of gratitude goes to Detective Michael Himmel of the Columbia Police Department (ret.) and Brian Hoey of the Missouri State Highway Patrol Crime Laboratory, who both provided a number of crime-scene and laboratory photos for this new edition. Without the cooperation of these persons and organizations, this book would not have been possible.

I would also like to thank the reviewers of the third edition for their comments and suggestions: Peter Curcio, Briarcliffe College; Scott Donaldson, Tarrant County College NW; Russ Pomrenke, Gwinnett Technical College; and Gregory Roth, Kirkwood Community College. A special thank you is also well deserved for Portfolio Manager Gary Bauer, along with the many other dedicated publishing professionals at Pearson for their hard work and support of this text. Finally, I would like to extend special thanks to those criminal justice academics and practitioners who painstakingly reviewed the manuscript of this book. Without the support and assistance of all these people and many more, this book would not have become a reality. Thank you all.

—Michael D. Lyman

► About the Author



Michael D. Lyman is a Professor of Criminal Justice at Columbia College, located in Columbia, Missouri. In addition to being a teaching faculty member, he serves as the program coordinator for the Master of Science of Criminal Justice Program and the founder of the college's Forensic Science Program. Before enter-

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criminal justice dealing with the areas of criminal investigation, policing, organized crime, drug enforcement, and drug trafficking. He received both his bachelor's and master's degrees from Wichita State University and his Ph.D. from the University of Missouri–Columbia. He has served law enforcement and legal communities on over 375 occasions to review criminal investigations and render the results of his evaluations and his opinions in federal court proceedings nationwide.

Textbooks such as this are an ongoing work in progress, and the author welcomes communication and correspondence about his work. Dr. Lyman can be contacted at Columbia College, Rogers Street, Columbia, MO or at mlyman@cougars.ccis.edu. Thank you for using this textbook.

“Our current system of criminal investigation is a direct result of what we have learned and what we have inherited from the past.”

1

Foundations of Criminal Investigation

- 1 Explain the history of criminal investigation.
- 2 Identify how research affects criminal investigation.
- 3 Explain the current research in criminal investigation.
- 4 Discuss the objectives of criminal investigation.
- 5 Distinguish between inductive and deductive reasoning.
- 6 Explain the expanding role of the patrol officer as criminal investigator.
- 7 Discuss the solvability factors in a criminal investigation.
- 8 Describe the preliminary investigation process.



WHEN MURDER TARGETS THE POLICE

On July 17, 2016, Gavin Eugene Long shot and killed three Baton Rouge, Louisiana police officers and wounded three additional officers. This occurred 10 days after five police officers were shot and killed in Dallas.

On that day, shortly before 8:40 a.m. Long arrived at Hammond Air Plaza in Baton Rouge, Louisiana, which was a shopping complex on Airline Highway. He immediately began scouting the area in search of police officers.

He first spotted a police patrol vehicle parked at a B-Quik convenience store that belonged to a sheriff's deputy who was working security in the area. Long parked his vehicle behind an adjacent building, got out, and prepared to shoot, but discovered that the vehicle was empty. He then drove north and noticed a police officer washing his vehicle a short distance away, but the officer left before Long could get close. By 8:40, a call came in to the police about a suspicious person carrying a rifle near the plaza.

When officers arrived at the scene, they found Long behind the Hair Crown Beauty Supply store dressed. He was dressed black and wearing a face mask. Shots were fired two minutes later. In two more minutes, there were reports that officers were down.

According to investigators, Long fired upon the first responding officers, fatally wounding three. One of the officers was killed trying to help another. Long shot another police officer and then moved to another part of the complex, where he shot two sheriff's deputies. The entire shooting lasted for less than 10 minutes. At 8:46, Long was reported to be near Benny's Car Wash. Officers fired on Long from behind the cover of patrol cars. Eventually, a SWAT team arrived on the scene. One SWAT officer took aim at Long from about 100 yards away and killed him and at 8:48, Long was dead. Responding officers used a robot to check Long's body for explosives.

The ensuing investigation of the active shooter was conducted by the Louisiana State Police. Their preliminary investigation determined that Long was actively targeting officers and ignoring civilians. It was also determined that Long was the only person involved in the shooting. A preliminary autopsy indicated that in addition to being



Pool/Getty Images

A Police Officer Bows His Head during Funeral Services for Baton Rouge Police Officer Matthew Gerald. Multiple Police Officers Were Killed and Wounded Five Days Earlier in a Shooting Near a Gas Station in Baton Rouge.

shot by the SWAT officer, Long suffered multiple other gunshot wounds.

At the scene of the shooting, police recovered numerous firearms. These included an IWI Tavor SAR 5.56-caliber rifle and a Springfield XD 9mm pistol. A third weapon—a Stag Arms M4-type 5.56-caliber semi-automatic rifle—was recovered from Long's rental Malibu. Officials believed that Long had intentions of attacking the Baton Rouge police headquarters and continuing to kill officers. It was also learned that Long was associated with organizations linked to black separatism and the sovereign citizen movement.

DISCUSS

Whether motivated by anger or hate, the presence of an active shooter in a public location is one of the greatest public concerns. Is it possible for police investigators to proactively predict if and where an active shooter might be next? What are some methods or techniques that could make this a reality?

The study of criminal investigation involves probing several different fields at once, and is therefore a difficult task about which to write. For example, it is important for an investigator to understand the basic techniques of collection and preservation of evidence, but to do so, a fundamental understanding of criminalistics or forensic science is often required. In addition to technical

competence, modern-day investigators must be well versed in the law. Legal skills include a working knowledge of criminal law, constitutional law, and rules of evidence, all of which are essential for successful prosecution of a criminal case. This chapter is designed to give the reader the underlying essentials of this field of policing, which is both rewarding and challenging.

► The Book's Theme

Criminal investigation is one of the most charismatic, engaging, and rewarding endeavors in the field of criminal justice. The theme of this book is its underlying "true north." That is, the premise of the book is that the function of criminal investigation

is both an art and a science. It calls on the abilities of the most competent, professional, and hard-working personnel in the criminal justice field. In order for this to take place, investigations must be conducted with the understanding that the end

does not justify the means, that integrity and constitutional principles of searching for the truth must be tempered by reasonableness and knowledge of the best practices of contemporary crime detection. In addition to constitutional considerations, investigations must be conducted with regard to requirements of agency policy and a proper sense of what is the right thing to do under the circumstances. That said, investigations must be fueled by the understanding that the goal of criminal investigation is as much to identify the guilty as to eliminate those who are not, and that investigations are never complete until each and every credible investigative lead has been properly considered.

► The History of Criminal Investigation

LEARNING
OUTCOMES
1

Explain the history of criminal investigation.

The roots of America's system of criminal investigation go back to the towns and cities of England during the eighteenth and nineteenth centuries. The ensuing crime wave forced law enforcement officials to take drastic measures. As a result, **thief catchers** were recruited from the riffraff of the streets to aid law enforcement officials in locating criminals. Two classes of thief catchers were identified: (1) hirelings, whose motivations were mercenary in nature; and (2) social climbers, who would implicate their accomplices in order to move up the social ladder.

Criminal Investigation in England

During the 1750s, crimes such as burglary and street robbery were rampant in England. Henry Fielding, an author and magistrate, took on the challenge of reducing the profits realized by criminals. Working relationships were established with local business owners, in particular pawnbrokers, who were provided with lists of stolen property. Fielding encouraged them to contact him if any stolen property came to their attention. Fielding took seriously his new duty as crime fighter and promptly employed new crime-fighting methods. One such method was the appointment of a handful of parish constables acclimated to night watchman duties. These trackers soon began performing criminal investigation functions and became well known as successful thief takers by using their ties with London's criminal underworld. Originally called "Mr. Fielding's People," they soon became known as the **Bow Street Runners**, the first well-known investigative body in England. Fielding's runners were not paid as police officers but rather in terms of thief-taker rewards, a percentage of all fines resulting from successful prosecution of thieves.

The Bow Street Runners were forerunners of a trend in policing for specialization within the police force. In fact, by 1800, the Bow Street Police Office was considered by many to be the leading law enforcement organization in the area.

The great watershed in British police development occurred in 1829 with the establishment of the London Metropolitan Police Department. Officers of the department were dubbed **bobbies** after the department's founder, Home Secretary Sir

Robert Peel. The "new" police were England's first paid, full-time police force, consisting of about 1,000 uniformed officers. In addition, they replaced the old constables, such as the Bow Street Runners, who had ultimately gained a reputation of incompetency and inefficiency.

The Creation of Scotland Yard

For many people, much misunderstanding has existed about the function and role of **Scotland Yard**. Some believe that it represents a single police authority in Great Britain. In fact, it is the headquarters of London's Metropolitan Police and has never exerted any authority over other police organizations in Great Britain. Although London's Metropolitan Police was founded in 1829, it took more than 10 years to organize a detective branch. Even then, however, "the Yard" was only a small division within the department. The strength of the force was increased in 1867 after an incident in which an explosion occurred when a small group of Irishmen were trying to free a prisoner from the Clerkenwell House of Detention. Several citizens were killed. A decade later, another reorganization occurred when several senior detectives of Scotland Yard were convicted of corruption charges.

Criminal Investigation in the United States

As the American frontier moved westward during the nineteenth century, outlaws posed serious problems in newly settled areas. Mining camps and cattle towns seemed to experience more violence than other areas. The westward migration had moved men and women far from the institutions that had served them previously. Law enforcement agencies and criminal courts, if present at all, made only minor strides in protecting the vast



Alison Wright/Corbis

Modern-Day English "Bobby" Police Officer.



Medford Historical Society Collection/Corbis

Allen Pinkerton (seated) with President Abraham Lincoln (standing) and Secret Service Agents.

areas under their jurisdictions. Indeed, it was in these areas that criminals could easily hide and witnesses would often move away, making detection and apprehension of criminals a discouraging task.

Following the lead of London's police force, the first professional police forces were established in the United States at Boston in 1837, New York in 1844, and Philadelphia in 1854.

By the 1870s, almost all major U.S. cities had municipal police departments. As in England, criminal investigation by public law enforcement was viewed as politically hazardous because it favored only those who could pay. But the rapid growth of cities produced violence, crime, and vice activities that demonstrated a breakdown of social order in small communities. Growing incidents of mob violence between Protestants and Catholics, immigrants and Native Americans, and abolitionists and pro-slavery groups were probably the most crucial catalysts for expanded police functions.

The Pinkerton National Detective Agency

Pinkerton's National Detective Agency, founded in 1850 by Scottish immigrant Allan Pinkerton, was the first organization of its type in the United States. In fact, its organizational structure was later adopted by the Federal Bureau of Investigation (FBI). The Pinkerton agency was called on by communities to handle cases that local law enforcement officers were unable to investigate due to incompetency or limited resources. Pinkerton offered the field of criminal investigation several innovations in crime detection. For example, he was the first to devise a **rogues' gallery**, which was a compilation of descriptions, methods of operation, hiding places, and names of associates of known criminals.

Pinkerton agents were hired to track western outlaws Jesse James, the Reno Gang, and the Wild Bunch (including Butch Cassidy and the Sundance Kid). On March 17, 1874, two Pinkerton detectives and Deputy Sheriff Edwin P. Daniels met the Younger brothers (associates of the James-Younger Gang);

John Younger and one Pinkerton agent were killed. In Union, Missouri, a bank was robbed by George Collins, aka Fred Lewis, and Bill Randolph; Pinkerton Detective Chas Schumacher trailed them and was killed. Collins was subsequently hanged on March 26, 1904, and Randolph was hanged on May 8, 1905, in Union, Missouri. Pinkerton agents were also hired for the purposes of transporting money and other high-quality merchandise between cities and towns. This made them extremely vulnerable to the outlaws. As such, Pinkerton agents were usually well paid and well armed.

Due to Pinkerton agents' conflicts with labor unions, labor organizers and union members still associate the term *Pinkerton* with strikebreaking. Accordingly, Pinkerton agents moved away from labor spying following disclosures by the La Follette Committee hearings in 1937. Pinkerton agents' criminal detection work also underwent problems resulting from the police modernization movement, which saw the rise of the FBI and the bolstering of detective branches and resources of the public police. Without the labor and criminal investigation work on which Pinkerton agents flourished for decades, the company became increasingly involved in protection services, and in the 1960s, the word "Detective" disappeared from the agency's letterhead. In July 2003, the Pinkerton agency was acquired along with longtime rival the William J. Burns Detective Agency (founded in 1910), one of the largest security companies in the world.

The Introduction of Metropolitan Detectives

As far back as 1845, New York City had 800 plainclothes officers. But not until 1857 were the police authorized to designate 20 patrol officers as detectives. In 1857, the New York City Police Department established a rogues' gallery of photographs of known offenders arranged by criminal specialty and height—and by the following year, it had over 700 photographs for detectives to study so that they might recognize criminals on the street.¹

Photographs from rogues' galleries of that era reveal that some offenders grimaced, puffed their cheeks, rolled their eyes, and otherwise tried to distort their appearance to lessen the chance of later recognition.



Geoff Brightling/Dorling Kindersley Limited

Pinkerton National Detective Agents Badge (1860).

In 1884, Chicago established this country's first municipal Criminal Identification Bureau. The Atlanta Police Department's Detective Bureau was organized in 1885 with a staff of one captain, one sergeant, and eight detectives.² In 1886, Thomas Byrnes, the dynamic chief detective of New York City, published *Professional Criminals in America*, which included pictures, descriptions, and the methods of all criminals known to him. Byrnes thereby contributed to information sharing among police departments. 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.³

State and Federal Initiatives

From the very beginning, the federal government utilized criminal investigators to detect revenue violations. In 1865, Congress created the United States Secret Service for the purposes of counterfeit detection. Following the assassination of President McKinley, in 1903 the Secret Service was also assigned responsibilities regarding the president.

Following the passing of Prohibition in 1920, the Bureau of Internal Revenue assumed responsibility for enforcement of Prohibition. In time, the number of bureau agents swelled to an enormous 4,000. The Bureau of Internal Revenue, however, was housed within the Department of the Treasury, so its agents were nicknamed "T-men."

The Creation of the FBI

Probably the single most significant development in criminal investigation in the United States was the establishment of the FBI in 1924. The FBI originated from a force of special agents created in 1908 by Attorney General Charles Bonaparte during the presidency of Theodore Roosevelt. The two men first met when they both spoke at a meeting of the Baltimore Civil Service Reform Association. Roosevelt, then Civil Service commissioner, boasted of his reforms in federal law enforcement. It was 1892, a time when law enforcement was often political rather than professional. Roosevelt spoke with pride of his

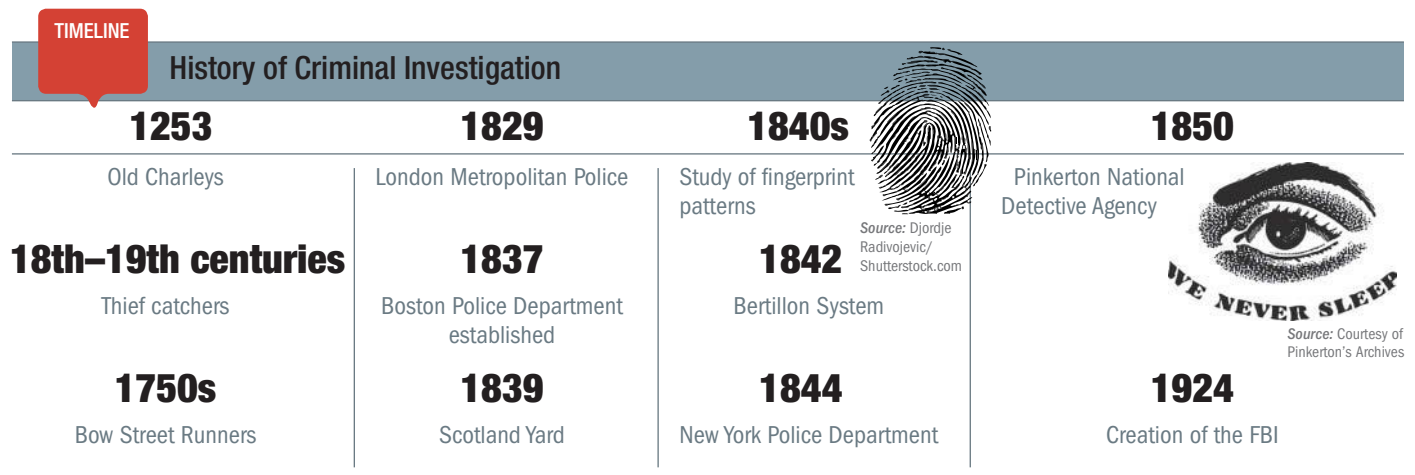
insistence that Border Patrol applicants pass marksmanship tests, with the most accurate getting the jobs. Following Roosevelt on the program, Bonaparte countered, tongue in cheek, that target shooting was not the way to get the best men: "Roosevelt should have had the men shoot at each other and given the jobs to the survivors."

Roosevelt and Bonaparte both were "Progressives." They shared the conviction that efficiency and expertise, not political connections, should determine who could best serve in government. Theodore Roosevelt became the president of the United States in 1901; four years later, he appointed Bonaparte to be attorney general. In 1908, Bonaparte applied that Progressive philosophy to the Department of Justice by creating a corps of special agents. It had neither a name nor an officially designated leader other than the attorney general. Yet, these former detectives and Secret Service men were the forerunners of the FBI.

Today, most Americans take for granted that our country needs a federal investigative service, but in 1908, the establishment of this kind of agency at a national level was highly controversial. The U.S. Constitution is based on "federalism": a national government with jurisdiction over matters that crossed boundaries, like interstate commerce and foreign affairs, with all other powers reserved to the states. Throughout the 1800s, Americans usually looked to cities, counties, and states to fulfill most government responsibilities. However, by the twentieth century, easier transportation and communications had created a climate of opinion favorable to the federal government establishing a strong investigative tradition.

The impulse among the American people toward a responsive federal government, coupled with an idealistic, reformist spirit, characterized what is known as the Progressive Era, from approximately 1900 to 1918. The Progressive generation believed that government intervention was necessary to produce justice in an industrial society. Moreover, it looked to "experts" in all phases of industry and government to produce that just society.

President Roosevelt personified Progressivism at the national level. A federal investigative force consisting of well-disciplined experts and designed to fight corruption and crime fit Roosevelt's Progressive scheme of government. Attorney General Bonaparte shared his president's Progressive philosophy.





Hulton-Deutsch Collection/Corbis

J. Edgar Hoover.

However, the Department of Justice under Bonaparte had no investigators of its own except for a few special agents who carried out specific assignments for the attorney general, and a force of examiners (trained as accountants) who reviewed the financial transactions of the federal courts. Since its beginning in 1870, the Department of Justice used funds appropriated to investigate federal crimes to hire private detectives first and later investigators from other federal agencies. (Federal crimes are those that were considered interstate or occurred on federal government reservations.)

By 1907, the Department of Justice most frequently called upon Secret Service “operatives” to conduct investigations. These men were well trained, dedicated—and expensive. Moreover, they reported not to the attorney general, but to the chief of the Secret Service. This situation frustrated Bonaparte, who wanted complete control of investigations under his jurisdiction. Congress provided the impetus for Bonaparte to acquire his own force. On May 27, 1908, it enacted a law preventing the Department of Justice from engaging Secret Service operatives.

The following month, Attorney General Bonaparte appointed a force of special agents within the Department of Justice. Accordingly, 10 former Secret Service employees and a number of Department of Justice peonage (i.e., compulsory servitude) investigators became special agents of the Department of Justice. On July 26, 1908, Bonaparte ordered them to report to Chief Examiner Stanley W. Finch. This action is celebrated as the beginning of the FBI.

Both Attorney General Bonaparte and President Theodore Roosevelt, who completed their terms in March 1909, recommended that the force of 34 agents become a permanent part of the Department of Justice. Attorney General George Wickersham, Bonaparte’s successor, named the force the Bureau of Investigation on March 16, 1909. At that time, the title of chief examiner was changed to chief of the Bureau of Investigation.

When new federal laws governing interstate transportation of stolen automobiles were passed, the bureau gained considerable notoriety. John Edgar (J. Edgar) Hoover, the bureau’s newly named director, announced in 1924 that he would strive to eliminate corruption and get the agency out of politics. In doing so, he raised the qualifications of agent personnel, reduced the number of agents nationwide, and closed some field offices. Today, the FBI is one of many federal investigative agencies that has made great strides in professionalizing the field of criminal investigation.

Other Investigative Initiatives

In 1933, when Prohibition was repealed by the Eighteenth Amendment to the U.S. Constitution, many former bootleggers and other criminals turned to other forms of criminality such as bank robbery and kidnapping. 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.

Under Hoover, who understood the importance and uses of information, records, and publicity, the FBI became known for investigative efficiency. 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. Altogether, these developments gave the FBI considerable influence over law enforcement throughout the country. Although some people argue that such federal influence is undesirable, others point out that Hoover and the FBI strengthened police practices in this country, from keeping crime statistics to improving investigation.

The Harrison Act (1914) made the distribution of nonmedical drugs a federal crime. Enforcement responsibility was initially given to the Internal Revenue Service, although by 1930 a separate Federal Bureau of Narcotics (FBN) was established in the Treasury Department. In 1949, a federal commission noted that federal narcotics enforcement was fragmented among several agencies, including the Border Patrol and Customs, resulting in duplication of effort and other ills. 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)**.

Today the DEA devotes many of its resources to fighting international drug traffic. Like the FBI, the DEA trains state and local police in investigative work. The training focuses on

recognition of illegal drugs, control of drug purchases, surveillance methods, and handling of informants. In 2002, several federal agencies were consolidated to form Immigration and Customs Enforcement (ICE) in the Department of Homeland Security (DHS).

Contributions of August Vollmer

A discussion of the history of policing would not be complete without addressing the vast contributions of August Vollmer. August Vollmer is one of the most important figures in the historic evolution of professional policing.

When he was alive he was one of the most famous people in the nation. He was Marshal in Berkeley, California, from 1905 to 1909 and advanced his career by becoming Berkeley's chief of police. He remained in that position from 1909 to 1931. During that time, Vollmer introduced numerous concepts that transformed policing into what it is today.

When Vollmer first came into office, police officers were known more for their brutality and corruption than their skills in crime control and order maintenance. Gambling dens and opium parlors operated openly in Berkeley because the owners paid off city officials. Vollmer, who only had a sixth-grade education, banned graft and gratuities, and instituted a series of reforms that are credited with transforming policing into a modern profession.⁴ Vollmer's many contributions included the following:

- In 1910, he was the first chief to put officers on bicycles, then on motorcycles a year later, and then in patrol cars in 1913. He then put radio communications in the cars in 1928.
- In 1906, he created a centralized police records system, one of the first in the United States.
- He was the first chief in the United States, in 1907, to insist his department to use blood, fiber, and soil analysis to solve crimes. Vollmer's emphasis on scientific investigation prompted the creation of numerous crime laboratories around the state.
- In 1907, he started the world's first police school where officers could learn about the laws of evidence.
- In 1914, he was the first to use radio communications between officers. Also that year he formed the first juvenile division in the country.
- Vollmer was the first police chief to require officers get college degrees.
- In 1916, he pioneered the teaching of criminal justice classes by starting a program at UC Berkeley.
- Vollmer outlawed the use of "third-degree" tactics, meaning police officers could no longer brutalize detainees to extract information.
- In 1921, Vollmer was the first chief to use the lie detector in investigations and was one of the first to use fingerprints to identify suspects.
- In 1919, Vollmer hired one of the nation's first African-American officers and the first female officer in 1925.

- He suggested that the role of police is to prevent crime rather than just to solve it. To better understand the criminal mind, Vollmer visited the jail each morning to talk to prisoners and corresponded extensively with men he had put in prison.
- Vollmer was also opposed to capital punishment.

Vollmer became so associated with police reform that he took extended leaves of absence from Berkeley to help out other departments.⁵ He helped reorganize police departments in Los Angeles, Chicago, San Diego, and Dallas, as well as in Cuba. On November 4, 1955, at the age of 79 and suffering from cancer, Vollmer committed suicide at his Berkeley home.

Historical Highlights in Forensic Science

The origins of criminalistics or forensic science are largely European. Forensic science draws from diverse disciplines, such as geology, physics, chemistry, biology, and mathematics, to study physical evidence related to crime. 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. Translated into English in 1906 under the title *Criminal Investigation*, it remains highly respected today as the seminal work in the field.

The Frenchman **Edmond Locard** established the first forensic laboratory in Lyon in 1910. All crime scenes are searched on the basis of **Locard's exchange principle**, which asserts that when perpetrators come into contact with the scene, they will leave something of themselves and take away something from the scene, for example, hairs and fibers. Expressed somewhat differently, Locard's exchange principle states that there is something to be found. He is also recognized as the father of poroscopy, the study of pores, and for advocating that if there were 12 points of agreement between two compared fingerprints, the identity was certain.

Although the field of forensic science has seen periods of stability, on the whole it is dynamic and a work in progress. Examples of this principle of dynamic change can be seen in the histories of two commonly used services—biometric-based identification and firearms identification.

Biometric-Based Identification

Technology in crime detection began to flourish during the nineteenth century with the creation of a personal identification system by Alphonse Bertillon, the director of the criminal identification section of the Paris Police Department. The **Bertillon system**, also known as **anthropometry**, was based on the idea that certain aspects of the human body, such as skeletal size, ear shaping, and eye color, remained the same after a person had reached full physical maturity. It used a combination of photographs with standardized physical measurements. **Dactylography** is the study of fingerprints. Fingerprints were used on contracts during China's T'ang Dynasty in the eighth century as well as on official papers in fourteenth-century Persia and seventeenth-century England. In the first century, the Roman lawyer Quintilianus introduced a bloody fingerprint in a murder trial, successfully defending a child against the charge of murdering his father.

A CLOSER LOOK

Current Applications of Firearms and Toolmark Analysis

Today, physical scientists/forensic examiners, physical science technicians, firearms specialists, and ammunition specialists all utilize forensic techniques to examine not just firearms but other devices used in criminality. These are examples:

Firearms Identification

- Comparing bullets to barrels
- Comparing cartridge cases to firearms
- Firearms function testing
- Silencer testing
- Gunshot distance determination

- Serial number restoration
- Accidental discharge determination
- Trigger pull measurements
- Ejection pattern testing
- Shot pattern examinations

Toolmark Identification

- Comparing tools with toolmarks found at the crime scene
- Comparing stamps with stamped impressions for identification
- Fracture matching
- Lock and key examinations

Source: Federal Bureau of Investigation. (2014). Retrieved from <http://www.fbi.gov>.

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 in England that dactylography was used as a country-wide system of criminal identification.

In the mid-1840s, the study of fingerprint patterns became a popular means to identify suspects in crime. Although the use of fingerprints is commonplace today, it wasn't until the late nineteenth century that it was learned that a person's fingerprints could act as a unique, unchangeable method of personal identification. Such discoveries have been credited to the Englishmen William J. Herschel and Henry Fields, who were working in Asia at the time.

Firearms Identification

In the United States, the historic 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, one of the last of the Bow Street Runners, Henry Goddard, made the first successful attempt to identify a murderer from a bullet recovered from the body of a victim. Goddard noticed that the bullet had a distinctive blemish or gouge on it. At the home of one suspect, Goddard seized a bullet mold with a defect whose location corresponded exactly to the gouge on the bullet. When confronted with this evidence, the owner of the mold confessed to the crime.

Professor Lacassagne removed a bullet in 1889 from a corpse in France. On examining it closely, he found seven grooves made as the bullet passed through the barrel of a gun. Shown the guns of a number of suspects, Lacassagne identified

the one that could have left seven grooves. On the basis of this evidence, a man was convicted of the murder. However, any number of guns manufactured at that time could have produced seven grooves. There is no way of knowing whether the right person was found guilty.

In 1898, a German chemist named Paul Jeserich was given a bullet taken from the body of a man murdered near Berlin. After firing a test bullet from the defendant's revolver, Jeserich took microphotographs of the fatal and test bullets and, on the basis of the agreement between both their respective normalities and abnormalities, testified that the defendant's revolver fired the fatal bullet, contributing materially to the conviction obtained. Unknowingly at the doorstep of scientific greatness, Jeserich did not pursue this discovery any further, choosing instead to return to his other interests.

Gradually, attention began to shift from just bullets to other aspects of firearms. In 1913, Professor Balthazard published perhaps the single most important article on firearms identification. In it, he noted that the firing pin, breechblock, extractor, and ejector all leave marks on cartridges and that these vary among different types of weapons.

► The Evolution in Research and Science in Forensic Science

As discussed, the seeds of modern forensic science were sown in the last quarter of the nineteenth century. Progress from that time has been

slow but steady. The American Academy of Forensic Sciences (AAFS), a professional organization of forensic scientists in America, was established in 1948. Specific areas of expertise of AAFS members include pathology and biology, toxicology, criminalistics, questioned documents, and forensic odontology and anthropology.

LEARNING
OUTCOMES
2

Identify how research affects criminal investigation.

In addition to the development of fingerprinting as an aid to criminal detection, several other forensic advances either were being developed or had already been placed into service by the late nineteenth century. Historic strides in criminal investigation included study in serology, forensic dentistry, and ballistics. For example, research into human blood was vastly expanded during the early twentieth century by Paul Uhlenhuth, a German physician. Uhlenhuth's work created serums that enabled one to distinguish one species of animal blood from another. Consequently, **serology** was a procedure that was established to study human bloodstains and distinguish them from the blood of most other animals.

Forensic pathology is a branch of pathology concerned with determining the cause of death by examination of a corpse. The pathologist, at the request of a coroner or medical examiner, performs the autopsy, usually during the investigation of criminal cases and civil suit cases in some jurisdictions. Forensic pathologists are also frequently asked to confirm the identity of a corpse.

The *forensic pathologist* is a medical doctor who has completed training in anatomical pathology and who has subsequently subspecialized in forensic pathology. Forensic pathologists perform autopsies/postmortem examinations to determine the cause of death. The autopsy report contains an opinion about the following:

- The pathologic process, injury, or disease that directly resulted in or initiated a series of events that led to a person's death (also called mechanism of death), such as a bullet wound to the head, exsanguinations due to a stab wound, manual or ligature strangulation, myocardial infarction due to coronary artery disease, and so on
- The "manner of death"—the circumstances surrounding the cause of death—which in most jurisdictions includes the following:
 - Homicide
 - Accidental
 - Natural
 - Suicide
 - Undetermined

The autopsy is also an opportunity for other issues raised by the death to be addressed, such as the collection of trace evidence or determining the identity of the deceased. Pathologists also have the following responsibilities:

- Examine and document wounds and injuries, both at autopsy and occasionally in a clinical setting.
- Collect and examine tissue specimens under the microscope in order to identify the presence or absence of natural disease and other microscopic findings, such as asbestos bodies in the lungs or gunpowder particles around a gunshot wound.
- Collect and interpret toxicological analyses on bodily tissues and fluids to determine the chemical cause of accidental overdoses or deliberate poisonings.
- Serve as expert witnesses in civil or criminal cases.

Think About It...

Pathology as a Forensic Career Although not a law enforcement officer, the forensic pathologist is one of criminal investigation's most valuable assets. Could you perform the duties of a pathologist? Why or why not?



Darren Baker/
Shutterstock

Researcher in Lab.

► Criminal Investigation Research

As with other aspects of criminal justice, research plays an important role in helping us to understand how criminal investigations can be more effective. Early studies by both the RAND Corporation and the Police Executive Research Forum challenged long-held opinions about criminal investigation and made some practical recommendations.

LEARNING
OUTCOMES
3

Explain the current research in criminal investigation.

The RAND Corporation Study

In the late 1970s, the National Institute of Law Enforcement and Criminal Justice awarded a grant to the RAND Corporation to undertake a nationwide study of criminal investigations by police agencies in major U.S. cities. The goals of the study were to determine how police investigations were organized and managed, as well as to assess various activities as they relate to the effectiveness of overall police functioning. Until this study, police investigators had not been placed under as much scrutiny as those in patrol functions or other areas of policing.

Design of the Study

The focus of the RAND study was the investigation of "index" offenses: serious crimes such as murder, robbery, and rape. Other less serious crimes, such as drug violations, gambling, and prostitution, were not considered in the study. A national survey was conducted that assessed the investigative practices of all municipal and county police agencies employing more than 150 sworn personnel or serving a jurisdiction with a population over 100,000. Observations and interviews were conducted in more than 25 departments, which were chosen to represent various investigative methods.

The *Uniform Crime Reports* (UCRs), administered by the FBI, were used to determine the outcome of investigations. Data on the allocation of investigative endeavors were obtained

A CLOSER LOOK

Modern Fields of Forensic Science

The area of forensic science has grown considerably over the last 150 years and more so since the mid-1980s. Here are examples of fields of forensic science that may be of interest to future criminal investigators:

- Forensic accounting is the study and interpretation of accounting evidence.
- Forensic anthropology is the application of physical anthropology in a legal setting, usually for the recovery and identification of skeletonized human remains.
- Forensic archaeology is the application of a combination of archaeological techniques and forensic science, typically in law enforcement.
- Forensic astronomy uses methods from astronomy to determine past celestial constellations for forensic purposes.
- Forensic botany is the study of plant life in order to gain information regarding possible crimes.
- Forensic chemistry is the study of detection and identification of illicit drugs, accelerants used in arson cases, and explosive and gunshot residue (GSR).
- Computational forensics concerns the development of algorithms and software to assist forensic examination.
- Criminalistics is the application of various sciences to answer questions relating to examination and comparison of biological evidence, trace evidence, impression evidence (such as fingerprints, footwear impressions, and tire tracks), controlled substances, ballistics, firearm and toolmark examination, and other evidence in criminal investigations. In typical circumstances, evidence is processed in a crime laboratory.
- Forensic dactyloscopy is the study of fingerprints.
- Digital forensics is the application of proven scientific methods and techniques in order to recover data from electronic/digital media. Digital forensic specialists work in the field as well as in the lab.
- Forensic document examination or questioned document examination answers questions about a disputed document using a variety of scientific processes and methods. Many examinations involve a comparison of the questioned document, or components of the document, to a set of known standards. The most common type of examination involves handwriting analysis, wherein the examiner tries to address concerns about potential authorship.
- Forensic DNA analysis takes advantage of the uniqueness of an individual's DNA to answer forensic questions such as paternity/maternity testing or placing a suspect at a crime scene (e.g., in a rape investigation).
- Forensic engineering is the scientific examination and analysis of structures and products relating to their failure or cause of damage.
- Forensic entomology deals with the examination of insects in, on, and around human remains to assist in the determination of time or location of death. It is also possible to determine if the body was moved after death.
- Forensic geology deals with trace evidence in the form of soils, minerals, and petroleum.
- Forensic limnology is the analysis of evidence collected from crime scenes in or around freshwater sources. Examination of biological organisms, in particular, diatoms, can be useful in connecting suspects with victims.
- Forensic linguistics deals with issues in the legal system that require linguistic expertise.
- Forensic meteorology is a site-specific analysis of past weather conditions for a point of loss.
- Forensic odontology is the study of the uniqueness of dentition, better known as the study of teeth.
- Forensic optometry is the study of glasses and other eyewear in relation to crime scenes and criminal investigations.
- Forensic pathology is a field in which the principles of medicine and pathology are applied to determine a cause of death or injury in the context of a legal inquiry.
- Forensic psychology is the study of the mind of an individual, using forensic methods. Usually it determines the circumstances behind a criminal's behavior.
- Forensic seismology is the study of techniques to distinguish the seismic signals generated by underground nuclear explosions from those generated by earthquakes.
- Forensic serology is the study of body fluids.
- Forensic toxicology is the study of the effect of drugs and poisons on/in the human body.
- Forensic video analysis is the scientific examination, comparison, and evaluation of video in legal matters.
- Mobile device forensics is the scientific examination and evaluation of evidence found on a mobile phone (e.g., call history, deleted SMS, and SIM card forensics).
- Trace evidence analysis is the analysis and comparison of trace evidence, including glass, paint, fibers, hair, and so on.
- Forensic podiatry is an application of the study of a foot, footprint, or footwear and their traces to analyze the scene of a crime and to establish personal identity in forensic examinations.

from a computerized network operated by the Kansas City Police Department. In addition, information from the National Crime Victimization Survey and the UCRs were linked to identify the effectiveness of arrest and the overall relationships between departments. Finally, the study analyzed case samples to determine how specific cases were solved.

Recommendations of the Study

The RAND study resulted in the following recommendations:

1. Postarrest activities should be coordinated more closely with the prosecutor's office. This could be accomplished by assigning an investigator to the prosecutor's office or

by permitting prosecutors discretionary guidance over the practices of investigators, thus increasing the number of prosecutable cases.

2. Patrol officers should be afforded greater responsibilities in conducting preliminary investigations, which will provide greater case-screening capabilities for investigators while eliminating redundancy. The study suggests that many cases can be closed at the preliminary investigation stage. Therefore, patrol officers should be trained to perform such duties.
3. Forensic resources should be increased for processing latent prints and developing a system to organize and search fingerprint files more effectively.
4. With regard to investigations of cases that the agency chose to pursue, a distinction should be made between cases that require routine clerical skills and those that require special investigative abilities. Investigations falling into the second category should be handled through a specialized investigation section.

In addition to the RAND Corporation's study, several others have offered support for its findings. Block and Weidman's study of the New York Police Department and Greenberg et al.'s decision-making model for felony investigations both support the idea that patrol officers make the majority of arrests during preliminary investigations and can provide excellent case-screening benefits for investigations.⁶

The PERF Study

In one important study, the Police Executive Research Forum (PERF) considered the roles played by detectives and patrol officers in the course of burglary and robbery investigations. The study examined three areas: DeKalb County, Georgia; St. Petersburg, Florida; and Wichita, Kansas. Of the major findings of the study, several observations were made.⁷ For example, PERF concluded that detectives and patrol officers contributed equally to the resolution of burglary and robbery cases. However, it was determined that in most cases, a period of four hours (stretched over several days) was sufficient to close cases and that 75 percent of burglary and robbery cases were suspended in less than two days due to a lack of leads. In the remainder of cases, detectives played a major role in follow-up work conducted to identify and arrest suspects. It was determined, however, that both detectives and patrol personnel are too reliant on victim information for identification purposes, as opposed to checking leads from sources such as informants, witnesses, and other information sources in the police department.

Results of the PERF study suggest the following:

1. There is not as much waste or mismanagement in investigations as earlier thought as a result of similar studies. The value of follow-up investigations by detectives in identifying and arresting suspects is also thought to be much greater than indicated by earlier studies.
2. Greater emphasis should be placed on the collection and use of physical evidence when applicable. Although

physical evidence is seldom used in identifying suspects, it can be effective in corroborating other evidence of suspect identification, indicating that although not all police departments use extensive training of evidence technicians, many have established policies regulating situations in which they should be used.

3. Police departments should develop policies and guidelines regulating the use of evidence technicians in routine cases such as burglary and robbery when there has been no physical injury to victims. This policy should be based on the assumption that if the suspects can be found through other means of identification, physical evidence is not likely to be useful.
4. Officers should dedicate greater effort to locating witnesses through the use of a neighborhood canvass. This was not found to be common practice by patrol officers in the cities studied because initial information was commonly learned via interviews with witnesses and victims. It was suggested that to expand the scope of their investigations, patrol officers seek additional witnesses and victims through a neighborhood canvass.
5. Patrol officers should make more extensive use of department records and informants to develop and identify suspects. Although checking department records would be a relatively easy task, the skills needed to develop and interview informants are not common among patrol officers. Supervisors in the patrol area could make a greater effort to provide such training to street officers to help them develop informants.

▶ The Objectives of Criminal Investigation

Because of the changing nature of criminal activity and the role of the investigator, the objectives of the criminal investigation may be more complex than people imagine. The objectives of criminal investigations are to

LEARNING OUTCOMES
4 Discuss the objectives of criminal investigation.

- Detect crime
- Locate and identify suspects in crimes
- Locate, document, and preserve evidence in crimes
- Arrest suspects in crimes
- Recover stolen property
- Prepare sound criminal cases for prosecution

The premise behind the criminal investigation field is that people make mistakes while committing crimes. For example, a burglar may leave behind broken glass or clothing fibers, or a rapist may leave fingerprints, skin tissue, semen, or blood. As a result of these oversights, evidence of who committed the crime is also left behind. It is the job of the criminal investigator to

know how, when, and where to look for such evidence. In doing so, he or she must be able to draw on various resources:

- Witnesses and informants, for firsthand information about the crime
- Technological advances in evidence collection and preservation
- Their own training and experience in investigative techniques

In summary, almost all crimes require some degree of investigation. The extent to which any particular violation is investigated depends largely on resources available to the department and how the department prioritizes the violation.

Inductive and Deductive Reasoning

LEARNING
OUTCOMES
5

Distinguish between inductive and deductive reasoning.

After an initial evaluation of evidence in a case, the criminal investigator draws conclusions through a process of reasoning. This process is typically achieved through inductive or deductive reasoning. The distinctions between the two are described next.

Inductive Reasoning

Induction or **inductive reasoning**, sometimes called inductive logic, is reasoning that takes us beyond what we know (our current evidence or information) to conclusions about what we don't know. Induction is used, for example, in drawing general conclusions from "specific" propositions, as in the following examples:

"All of John Wayne Gacy's victims found to date were male [specific]; thus, Gacy did not kill females [general]."

Or:

"This ice is cold, and all ice I have ever touched was cold [specific] . . . to infer general; thus, all ice is cold [general]."

The calculus of inductive reasoning can also be broken down into conclusions that are strong versus those that are not so strong or even weak. For example, the following are examples of strong and weak induction.

Strong Induction

"All observed crows are black; therefore, all crows are black."

This exemplifies the nature of induction: inducing the universal from the particular. However, the conclusion is not certain. Unless one can systematically falsify the possibility of crows being another color, the conclusion that all crows are all black may actually be false.

Technically speaking, one could examine a crow's genome and learn whether it's capable of producing a differently colored bird. In doing so, we could discover that, in fact, colored crows are genetically possible. Consequently, a strong induction is an argument in which the truth of the premises would make the truth of the conclusion probable but not necessary.

Weak Induction

"I always hang pictures on nails; therefore, all pictures hang from nails."

Assuming the first statement to be true, this example is built on the certainty that "I always hang pictures on nails" leading to the generalization that "All pictures hang from nails." However, the link between the premise and the inductive conclusion is weak. In other words, there is no reason to believe that just because one person hangs pictures on nails that there are no other ways for pictures to be hung or that other people cannot do other things with pictures.

Of course, not all pictures are hung from nails, and for that matter, many pictures aren't hung at all. So the conclusion cannot be strongly inductively made from the premise. Using other knowledge, we can easily see that this example of induction would lead us to a clearly false conclusion. Conclusions drawn in this manner are usually overgeneralizations that are in need of further investigation. Consider another example of weak induction:

"Many speeding tickets are given to teenagers; therefore, all teenagers drive fast."

In this example, although the premise is built upon a certainty, it is not one that leads to a reasonable conclusion. Not every teenager observed has been given a speeding ticket. In other words, unlike "The sun rises every morning," there are already plenty of examples of teenagers who have not received speeding tickets. Therefore, the conclusion drawn can easily be true or false, and the inductive logic does not give us a strong conclusion. In both of these examples of weak induction, the logical means of connecting the premise and conclusion (with the word "therefore") are faulty and do not give us a strong inductively reasoned statement.

Deductive Reasoning

Sometimes called deductive logic, **deductive reasoning** is reasoning based on specific pieces of evidence to establish proof that a suspect is guilty of an offense—for example, identifying muddy footprints outside a window where a burglary has occurred. An issue would be whether the footprints belonged to an occupant of the house, to the burglar, or to someone else.

Deductive reasoning is often contrasted with inductive reasoning. For example, by thinking about phenomena such as how apples fall and how the planets move, Isaac Newton induced his theory of gravity. In the nineteenth century, Adams and LeVerrier applied Newton's theory (general principle) to deduce the existence, mass, position, and orbit of Neptune (specific conclusions) from perturbations in the observed orbit of Uranus (specific data).

In the context of criminal investigation, investigators must anticipate all possible scenarios and know what evidence is needed to support prosecution of the case because each issue in dispute must be supported by evidence. The more evidence an investigator collects, the stronger the case and the stronger the proof of guilt. Conversely, the criminal investigator must also consider what evidence is available to exonerate innocent parties.

Inductive Reasoning

Sometimes called inductive logic, inductive reasoning is reasoning that takes us beyond what we know (our current evidence or information) to conclusions about what we don't know. Induction is used, for example, in using "specific" propositions. There are two types of inductive reasoning, strong and weak inductive reasoning.

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Inductive and Deductive Reasoning.

Challenging Inductive and Deductive Reasoning

In 2002, Jon J. Nordby questioned the processes of inductive and deductive reasoning in his book *Dead Reckoning: The Art of Forensic Detection*. Nordby suggested that it's not enough to just collect and analyze evidence; investigators also need a guiding theory that's flexible enough to accommodate new information and sufficiently logical to show a clear pattern of cause and effect.⁸

For example, Nordby states that a homicide investigation could show that the killer did not need to break in to a residence because he or she had a key. This theory would significantly narrow the possibilities. It is important for investigators to have a theory that guides the investigation, but also important is that any theory that is contradicted must be discarded. In other words, it is important for investigators to understand how logic and science work together.

Abduction is the process, in line with this reasoning, of proposing a likely explanation for an event that must then be tested. For example, the likely explanation that the killer had a key to the victim's home must then be followed up with testing. Nordby suggests

Induction is the wrong way of looking at science . . . because the classic problem of induction is the contrary instance [something that contradicts the claim].

Let us consider the notion that once a crime scene investigator observes a hair or piece of fiber, he or she now has their evidence. The reality is that many if not most crime scenes exist in dirty, debris-filled rooms. Such places are abundant with hair and fibers. So what is the

investigator actually looking for? Which of all of those hairs and fibers is actually evidence? Unless the criminal investigator has an idea or theory that will make one object relevant and another irrelevant, the evidence-collection process will be overwhelming. In order to have purpose in what is being done, the investigator must have something in mind. That comes from abduction.

Developing an explanation that can be tested moves the investigation forward and guides the accumulation of knowledge, giving way only when contradicted. Abduction helps to make links among events, and the development of the overall theory of a crime depends on adding new links. Nordby suggests that abduction keeps guessing to a minimum.

Critical Thinking and Scientific Methodology

In addition to the use of deductive and inductive logic in interpreting evidence, criminal investigators must incorporate skills of critical thinking with known scientific methods in their investigations. Let's look at how these two approaches to criminal investigation compare.

The processes of critical thinking and the scientific method need not be mutually exclusive. Rather, reasonable and informed investigators consider both as tools in their investigative arsenal, allowing for critical thinking in determining the direction of the investigation and scientific methods in evaluating the value and usefulness of evidence.

COMPARISON TABLE OF CRITICAL THINKING AND SCIENTIFIC METHODOLOGY

In addition to the use of deductive and inductive logic in interpreting evidence, criminal investigators must incorporate skills of critical thinking with known scientific methods in their investigations. Let's look at how these two approaches to criminal investigation compare.

Scientific Methodology

In contrast with critical thinking, the scientific method refers to techniques for investigating phenomena, acquiring new knowledge, or correcting and integrating previous knowledge. To be termed scientific, a method of inquiry must be based on gathering empirical and measurable evidence.¹

A scientific method consists of the collection of data through observation and experimentation and the formulation and testing of hypotheses. Each element of a scientific method is subject to peer review for possible mistakes.

The processes of critical thinking and scientific method need not be mutually exclusive. Rather, reasonable and informed investigators consider both as tools in their investigative arsenal, allowing for critical thinking in determining the direction of the investigation and scientific methods in evaluating the value of and usefulness of evidence.

Critical thinking

Critical thinking is the use of rational skills, worldviews, and values to get as close as possible to the truth. It is judgment about what to believe or what to do in response to observations or experiences. Critical thinking can also involve determining the meaning and significance of what is observed to determine whether there is adequate justification to accept whether a conclusion is true.

In contemporary usage, "critical" has the connotation of expressing disapproval, which is not always true of critical thinking. A critical evaluation of an argument, for example, might conclude that it is good.

Whereas thinking is often *casual* or routine, critical thinking deliberately evaluates the *quality* of thinking. In an early study on critical thinking in 1941, Edward Glaser wrote that the ability to think critically involves the following three things²:

1. An attitude of being disposed to consider in a thoughtful way the problems and subjects that come within the range of one's experiences
2. Knowledge of the methods of logical inquiry and reasoning
3. Some skill in applying those methods

Critical thinking calls for a persistent effort to examine any belief or supposed form of knowledge in the light of the evidence that supports it and the further conclusions to which it tends. It also generally requires ability to recognize problems and to find workable means for meeting those problems. Critical thinking may occur whenever one judges, decides, or solves a problem—essentially, critical thinking may be used whenever one must figure out what to believe or what to do and do so in a reasonable and reflective way.

Critical thinking is important because it enables one to analyze, evaluate, explain, and restructure one's thinking, thereby decreasing the risk of adopting, acting on, or thinking with a false belief.

¹ Newton. (1999). Rules for the study of natural philosophy. From the General Scholium, which follows Book 3, *The system of the world* 794–796.

² Glaser, E. M. (1941). *An experiment in the development of critical thinking*. Teacher's College, Columbia University.

The Emergence of the Police Specialist

Within law enforcement agencies in the United States, a division typically exists between officers whose responsibility is to maintain order and those who investigate crimes. In larger departments, specialized squads typically perform the investigative function in law enforcement agencies. In fact, many such departments have several internal detective divisions, each dealing with different categories of crime, such as crimes against persons (e.g., rape, assault, and robbery), crimes against property (e.g., burglary, larceny, and auto theft), and vice crimes (e.g., drug violations, gambling, and prostitution). Smaller rural departments often lack the financial resources to specialize, so patrol officers often conduct criminal investigations in addition to their patrol duties.

In some types of crime, such as homicide, investigators must develop leads through interviews with friends, family, and associates of the victim as well as witnesses to the crime. In other cases, investigative leads are developed by sifting through files and prior police records and establishing the suspect's mode of operation (MO). In all cases, the investigative process uses traditional and historical methods of detection through the use of official records, photographs, fingerprints, and so on, as opposed to daily face-to-face contacts with the citizenry, such

as with the patrol division. The investigative specialist is generally an older person who has had considerable experience in police work. Most detectives are former patrol personnel who have worked up through the ranks due to the common practice of promoting from within.

Types of Investigations

The mission of law enforcement is complex and demanding but contains some fundamental components, including the maintenance of peace in our communities and the protection of lives and property. When people choose to violate laws that provide for these essentials, the perpetrators must be identified and brought before a court. It is the task of identifying such offenders that is the quintessence of criminal investigation. Criminal investigators confront investigations in several areas in the regular course of their duties:

- Personal background, to determine a person's suitability for appointment to sensitive public trust positions
- Suspected violations of criminal law
- Infractions of civil law
- Vice (drug and organized crime activity)

Crime-Scene Investigators

The popular television show *CSI: Crime Scene Investigation* has brought the role of the crime-scene investigator to the public, creating considerable interest in forensic science. Of course, crime-scene investigators require very specific training with regard to crime-scene protection and the identification and preservation of evidence, and not every law enforcement agency is able to support a dedicated crime-scene investigation (CSI) unit. A description of the crime-scene unit (CSU) is provided by Michael Weisberg (2001):⁹

The crime-scene unit (CSU) can be described as a specialized investigative unit that supports the crime scene investigation by identifying, documenting and preserving evidence. Services include fingerprinting, sketching and photographing physical evidence. Members of the CSU respond to the scene of the crime and in addition to locating physical evidence, specialists assist in identifying witnesses, victims and suspects. Depending on the structure of the law enforcement organization, members of the CSU may be sworn or non-sworn.

Modes of Investigation

Criminal investigations are conducted through the use of three different responses: reactive, proactive, and preventive.

The **reactive response** addresses crimes that have already occurred, such as murder, robbery, and burglary. In this case, investigators typically respond to a crime, collect evidence, locate and interview witnesses, and identify and arrest a suspected perpetrator. Investigations are also conducted as a **proactive response** to anticipated criminal activity, as with many vice and organized crime investigations. Proactive investigations differ from reactive investigations in two major regards: (1) The investigation is conducted before the crime is committed (rather than after), and (2) the suspect is identified before he or she commits the crime. Finally, investigations are sometimes conducted as a **preventive response**. Prevention through deterrence is sometimes achieved by arresting the criminal and by aggressive prosecution.

The Role of the Criminal Investigator

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Explain the expanding role of the patrol officer as criminal investigator.

As indicated earlier, many myths exist regarding the role of criminal investigators. Perhaps these are best summarized by Herman Goldstein, who wrote¹⁰

Part of the mystique of detective operations is the impression that a detective has difficult-to-come-by qualifications and skills; that investigating crime is a real science; that a detective does much more important work than other police officers; that all detective work is exciting; and that a good detective can solve any crime. It borders on heresy to point out that, in fact, much of what detectives do consists of very routine and very

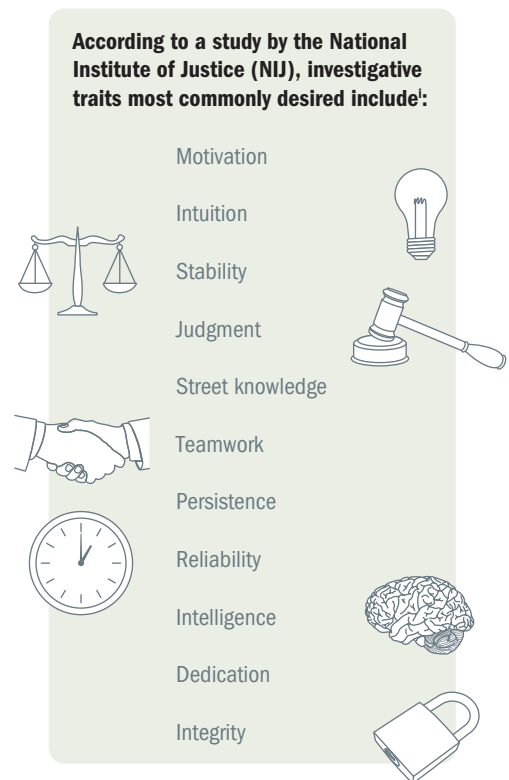
elementary chores, including much paper processing; that a good deal of their work is not only not exciting but downright boring; that the situations they confront are often less demanding and challenging than those handled by patrol officers; that it is arguable whether special skills and knowledge are required for detective work; that a considerable amount of detective work is usually undertaken on a hit-or-miss basis; and that the capacity of detectives to solve crimes is greatly exaggerated.

Indeed, some studies have suggested that the role played by investigators is overrated and that their time could probably be spent more productively by focusing on crimes with the best likelihood of clearance.¹¹ Other researchers suggest that the investigative process is a valid utility in crime detection but should be augmented by the use of proactive patrol programs.

Characteristics of the Investigator

What characteristics best define a professional criminal investigator? Certainly, standards vary from one law enforcement agency to the next, but certain commonalities can be identified. To recognize these qualities, many police agencies implement a supervisory performance appraisal system to evaluate suitability for appointment to investigator. Once taken, the police manager can choose from candidates who possess the most sought-after qualities. The qualities involved in investigative performance are listed in Figure 1–1.

Investigators are specialists. They undertake activities related primarily to law enforcement; patrol officers, on the



¹ National Institute of Justice. (1987, September). *Investigators who perform well*. Washington, DC: U.S. Department of Justice, September.

Investigative Traits Most Desired.

Qualities Involved in Investigative Performance

Gathering Information	Intelligence	Prosecutions
Crime-scene management	Perseverance	Quantity
Communication skills	Initiative	Presentation of testimony
Field Operations	Judgment	Percent of convictions
Stakeouts	Teamwork	Personnel Performance
Patrol	Involvement	Absenteeism
Crime-pattern analysis	Dedication	Complaints
Developing informants	Arrests	Awards
Street knowledge	Quantity	Dedication
Personal Traits	Quality	Qualifications
Motivation	Public Victim Satisfaction	Education
Stability	Crime reduction	Training
Persistence	Diminution of fear	Previous assignments in department

FIGURE 1-1 Qualities Involved in Investigative Performance.

other hand, routinely spend their time in order maintenance (e.g., maintaining peace) and the provision of general services (e.g., emergency aid, finding lost children, traffic control). Despite the diversity of tasks performed by patrol officers, investigators also assume many substantial duties. For example, detectives gather crime information, effect arrests, and prepare cases for prosecution and trial.

The Patrol Officer as an Investigator

Traditionally, the responsibility of patrol officers in criminal investigations has been limited. Patrol officers have been required only to collect and record the most basic information by asking simple questions of the victims and witnesses and recording their answers on a report form. Although in the past patrol officers have studied crime scenes for physical evidence, usually the time spent on any one incident has been minimal. As a rule, reports have been reviewed by a supervisor and then sent to the detective division or an investigative unit for follow-up. In many cases, this process has resulted in the duplication of efforts by investigators.

Over the past decade, many police departments have expanded the role of the patrol officer to responsibilities that are traditionally assigned to investigators. These new responsibilities include the following:

- The patrol officer provides immediate assistance to victims, locates witnesses, interviews both victims and witnesses, and records information about the crime scene. Depending on the seriousness of the crime or the presence of physical evidence, the patrol officer may call for a more specialized search by evidence technicians. To a great extent, this procedure initiates the case.
- The patrol officer has the authority to initiate and complete investigation of certain classifications of crime, such as all misdemeanors, cases that involve property value up to \$1,500, and auto larceny cases. Investigations of more serious crimes continue to be referred to specialized investigative units. The practical effect of this “sorting out” of responsibilities for different types of investigations is that patrol officers investigate high-volume crimes that can be

investigated as effectively by patrol as by criminal investigators. Conversely, investigations that require more time, specialized skill, and effort are handled by trained criminal investigators.

- In rare cases, the police officer may be given responsibility for the entire investigative process. In these situations, the patrol officer carries out all investigative functions. Investigators, if there are any, perform as consultants to the patrol officers.

For the most part, police administrators agree that these changes in the patrol officers’ roles have produced a number of benefits, including the following:

- The cases are handled completely and expeditiously.
- Relationships and communications between patrol officers and investigators have improved.
- The frequency of morale problems among patrol officers has decreased, and the decrease is attributable to the officers’ belief that their skills are being better used in the investigative process.
- An increase in investigator productivity has resulted from a light caseload, which produced more time to focus investigative resources on specific high-profile cases.
- There is better management of the entire investigative effort by the police administrator.

► Solvability Factors

A police department’s reporting system and the investigative role of the patrol officer are inextricably bound. The redefining of the role of patrol officer is intended to ensure that evidence supporting the continual investigation or case closure is collected at the earliest possible point in the investigative process. This reporting system serves as the foundation for the criminal investigation.

The reporting system is defined by two basic components, which in combination form the basis for an initial investigation.

LEARNING
OUTCOMES
7

Discuss the solvability factors in a criminal investigation.

Primary Solvability Factors

1. Immediate availability of witnesses
2. Name(s) of the suspect
3. Information about the suspect's location
4. Information about the suspect's description
5. Information about the suspect's identification
6. Information about the suspect's vehicle and vehicle movement
7. Information about traceable property
8. Information about significant MO
9. Information about significant physical evidence
10. Discovery of useful physical evidence
11. Judgment by the patrol officer that there is sufficient information available to conclude that anyone other than the suspect could not have committed the crime
12. Judgment by the patrol officer on case disposition. If the officer believes there is enough information available and with a reasonable investment of investigative effort that the probability of the case solution is high, then the investigation should be continued.

The first is a format that logically guides the identification leads, or **solvability factors**, that experience and research have demonstrated are most likely to result in case solution. The second provides an opportunity for details of the investigation thus far expended so that the follow-up plans do not unnecessarily duplicate tasks already completed.

A police department's reporting system should not only indicate that solvability factors are present, but also identify the investigative effort expended in searching for leads. For example, if witnesses have been sought in a number of locations, the report should indicate where the search was conducted, who was contacted, and what was found. Without this description, the follow-up investigator will not have a clear idea of where the patrol officer has located the existing solvability factors and will end up duplicating his or her efforts.

Unless the patrol officer is able to make an immediate, on-scene arrest, 12 essential questions need direct answers. These solvability factors are logically based on existing police practices. All agencies may have different capabilities and procedures that result in slightly different solvability factors.

From an investigative standpoint, these 12 structured questions serve to define what the patrol officer should accomplish. Patrol officers directing their activities to areas that were the most promising for a successful case solution not only broadened their roles, but also established effective limitations as to where patrol officers should terminate their investigation. Furthermore, utilization of the solvability factors emphasizes the importance of a thorough initial investigation even when it is being turned over for a continuing investigation. The patrol officer has provided the direction of the investigation, up to this point.

In summary, the expanded role of patrol officers in recent years has meant increased efficiency and effectiveness in policing in general and in criminal investigation specifically. It has also helped to enlighten those who serve the community in the capacity as patrol officers and to make them more aware of their important role as first responders to crime scenes and as the police department's eyes and ears on the street. In their role

Think About It...

Signature Murders One of the first things investigators consider in evaluating a homicide case is whether the method of operation, or "MO," was used in other crimes. In some extreme cases, not only is the same MO used, but also a "signature" of sorts is left at the scene that specifically identifies that scene with a particular killer. A signature crime is a crime that exhibits characteristics idiosyncratic to specific criminals, known as signature aspects, behaviors, or characteristics. Can you think of any "signature" crimes you have heard about? On one hand, the discovery of a signature crime provides the investigator with investigative leads, but can investigators wrongfully target a suspect just because a crime has similar aspects?



Police Investigating a Crime Scene.

as first responders to crime scenes, patrol officers have many specific duties. These duties are encompassed in a process known as the preliminary investigation.

► The Preliminary Investigation

Although the primary purpose of a patrol force is to prevent crime, patrol officers have assumed many other responsibilities, including the investigation of crimes (discussed earlier). In modern police departments, the patrol force participates fully in the preliminary investigation of crimes.

The preliminary investigation is the responsibility of the first officer at the crime scene. His or her actions at the scene can greatly influence the ultimate success or failure of the investigation. In other words, a job well done during a preliminary investigation should provide the information or evidence needed to build a solid case. Conversely, errors made during the preliminary investigation, especially those that involve a failure to properly safeguard or identify physical evidence, cannot be rectified at a later time.

From the time the officer receives information to proceed to a crime scene, his or her preliminary investigation objectives are the following:

- Determine what has happened.
- Locate witnesses and sources of evidence that aid in determining what has occurred.

LEARNING
OUTCOMES
8 Describe the
preliminary investiga-
tion process.

- Locate and preserve physical evidence.
- Determine what further investigative steps should be taken.
- Obtain and evaluate the accuracy of witnesses' statements.
- Determine whether to act on the statements and evidence found at the scene.
- Record what has been done, what has been learned, and what is left to be done.
- Complete the investigation and make an apprehension if appropriate.

One of the primary objectives of the preliminary investigation is to establish whether the necessary elements of a crime exist. All information obtainable at the scene of a crime should be gathered and reported at the time of the initial police response. The follow-up investigation by specialists is a second step—provided this second step won't unnecessarily postpone the successful completion of the investigation.

The preliminary investigation should begin when an officer is assigned to proceed to a crime scene and only terminate when he or she has completed the task to the point at which a delay in further action does not substantially affect the successful outcome of the investigation. For the most part, the nature of the crime and the relationship between the time of occurrence and the time of arresting the perpetrator determine whether or not the offense is investigated to conclusion by the patrol officer. When a suspect is arrested at or near the scene of a crime or during or shortly after the crime, the limits of a preliminary investigation need to be extended. If an extensive search of the crime scene for physical evidence is necessary, the preliminary and follow-up investigations overlap into a single operation. An example of this is homicide investigations.

Typically, patrol officers proceed to crime scenes with bits and pieces of information that must first be verified and then expanded to be of investigative use. However, as far as only crime-scene response is concerned, the patrol officer usually has two facts that shape his or her preliminary plans: the type of crime and the location of the crime. These facts usually indicate the urgency of a call and thus the degree to which a patrol officer can conduct the preliminary investigation.

The Crime-Scene Response

While approaching the crime scene, the responding officer must remain observant for potential suspects fleeing the area. The officer should note descriptions of people and vehicles leaving the crime area. A critical decision needs to be made by the responding officer when he or she observes a suspect. The

officer must decide whether to stop his or her approach to the crime scene and investigate a suspicious person who may be fleeing or to proceed directly to the crime scene. The decision to stop must be based on the likelihood that the suspicious person is the offender fleeing the crime scene.

If it is necessary to stop a suspicious person, the officer should notify the dispatcher immediately so that other units are aware of the situation. The dispatcher should assign a backup unit to assist the officer and then send another officer to the crime scene.

Aid to the Injured

The first duties of police officers at the scene of the crime are to administer first aid and obtain medical assistance for injured parties when required. All considerations are secondary to the well-being of injured parties. Even the capture of suspects and the integrity of valuable clues or evidence may need to be sacrificed to aid a victim. Obviously, if other apparently qualified persons are at the crime scene to provide first aid, an officer can then pursue fleeing suspects.

While rendering aid, officers should disturb the scene as little as possible. They should not unnecessarily move furniture, use facilities, or litter the area. For example, first aid supplies should be collected after use. Ambulance personnel should be directed how to enter and work within the crime scene so as not to needlessly disturb it.

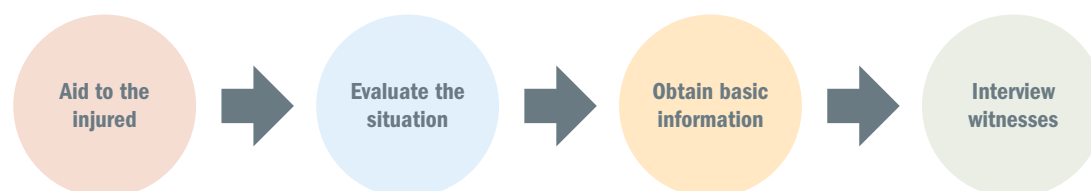
Evaluate the Situation

After caring for any injured people, the officer should make an evaluation of the crime scene before proceeding with the preliminary investigation. Evaluation of the scene at this time often prevents false moves and mistakes. By observing the overall crime scene, a police officer can gain a reasonably accurate mental image of how the crime occurred and where it was committed. Of course, if additional assistance is needed at the crime scene, the officer should request it immediately.

After arriving at the scene, the officer must exercise extreme caution. He or she should concentrate on identifying potential evidence and avoid disturbing the likely locations of fingerprints and other evidence. For example, the swinging double doors common to many commercial establishments should be pushed open at a point lower than normally touched by a person. After the doors are identified as possible sources of fingerprints, they can be protected from contamination by locking them or tying them open.

The officer should observe and record the details of the scene. This is done by beginning to take notes as soon as possible. The longer the officer waits, the greater the danger

The Crime-Scene Response



becomes of omitting small but often important facts. The type of small details include whether a door was closed or locked, the lights were all on or off, or the blinds were open or closed.

Obtain Basic Information

For the most part, the preliminary sources of immediate information at a crime scene are victims and witnesses. From them, the officer can obtain the essential facts of the case. Although a lengthy inquiry cannot be conducted when the officer first arrives, he or she should establish the following points:

- The identities of victims, witnesses, and others present at the scene when the officer arrived
- A brief account from each witness or victim of what occurred, including descriptions of any suspects

After basic information has been obtained, the officer should broadcast a lookout alert or BOLO (“be on the lookout”). Alerting other field units about the nature of the offense and the details about the suspect, mode and direction of travel, description of the vehicle, proceeds of the crime, and type of weapon used may lead to an immediate arrest of a fleeing suspect.

Interview Witnesses

The first officer at the scene must detain witnesses. The officer should quickly remove all persons from the crime scene and should not allow them to return until all of the necessary crime-scene work is completed. The witnesses should be separated so that they cannot discuss the case with each other. Such discussions among witnesses about the crime can adversely influence the witnesses’ memories and statements.

The officer must obtain adequate information to identify and locate witnesses. Some witnesses may volunteer and offer to provide information to the officer. However, witnesses are not always easy to find. Many persons are reluctant to accept the role of witness, and they avoid becoming involved with the investigation in any manner.

One technique for identifying witnesses is watching the crowd for persons who are describing what they observed. Also, the officer should ask each witness to point out anyone else who was present at the time of the crime. In major crimes, the license numbers of vehicles parked near the crime scene and in the immediate neighborhood should be documented.

The officer should determine which witnesses have the most helpful information and obtain full details from them. Other witnesses who have not observed a significant part of the crime should be permitted to give a brief statement.

When a crime is committed within a residential building, the number of possible witnesses may be few. On the other

When possible, witnesses and others should be interviewed in the following order:

1. Victim
2. Eyewitnesses
3. Persons observing the suspect entering or leaving the crime scene
4. Persons having knowledge of events leading up to the crime
5. Persons in the neighborhood

The Proper Order of Interviews.

hand, when a crime is committed in a store or on the street, a large number of persons may typically have witnessed the offense. The officer may need to visit adjoining places of business, apartments, or homes to determine if other persons might have knowledge of the crime.

The officer’s inquiries must go beyond simply taking statements. He or she cannot accept without questioning anything stated by a witness. The officer must be observant and quick to recognize discrepancies or unusual behavior on the part of witnesses. Furthermore, the officer must examine the interrelationships between the accounts of witnesses and other evidence in the case. This involves more than establishing that the witness has personal knowledge of the circumstances of the crime; it also involves an examination of the statements of witnesses in relation to their physical ability, the geographic layout of the crime scene, weather, and degree of visibility. Other factors include reasons for the witness being present at the scene.

In conclusion, criminal investigation is a dynamic and challenging police endeavor. Its roots are deeply embedded in our English heritage, and the slow evolution of techniques and research has resulted in our current system of investigative crime detection. Methods of approaching the crime scene are numerous but include time-honored techniques such as inductive and deductive reasoning coupled with critical thinking skills and scientific methodology.

Not everyone is well suited to be a criminal investigator, as research has shown that the preferable candidate should possess certain personality traits. Once the right individual is ready for the job, he or she must work closely with patrol first responders to properly access the crime scene and identify, collect, and properly preserve evidence.

THE CASE

Anatomy of a Home Invasion

In the late afternoon of July 22, 2007, Jennifer Hawke-Petit and her daughter Michaela went to a local grocery store in Cheshire, Connecticut. They had been targeted by Steven Hayes and his accomplice Joshua Komisarjevsky, who followed them home, and planned to later rob the family by home invasion. Anticipating their deeds, Hayes and Komisarjevsky exchanged text messages that were later introduced in court. According to Hayes's confession, the two men planned to rob the house and flee the scene with the family bound and unharmed, but there was a change in their plan. They beat the husband William Petit with a bat Komisarjevsky had found in the yard, and then tied him up in the basement at gunpoint. The children and their mother were each bound and locked in their respective rooms. Hayes convinced Jennifer to withdraw \$15,000 from her line of credit. Video surveillance at a gas station showed Hayes purchasing \$10 worth of gasoline in two cans he had taken from the Petit home.

Hayes and Komisarjevsky escalated their crime when Komisarjevsky sexually assaulted the 11-year-old daughter, Michaela, and photographed his assault on his cell phone. He then provoked Hayes to rape Jennifer. Hayes strangled Jennifer, and doused her body and parts of the house, including the daughter's room, with gasoline. A fire was then ignited, and Hayes and Komisarjevsky fled the scene, leaving the family members to die from smoke inhalation. The invasion lasted seven hours, and



Arthur Turner/Alamy Stock Photo

Hayes and Komisarjevsky were found guilty of their role in the home invasion and murders. Although this was a horrific crime, we learn from this case that many crimes of violence leave a considerable amount of evidence behind.

Sources: "Neighbors, schools mourn Petit family—Family's charitable work honored." (2007). *Channel 3 Eyewitness News*. Retrieved from www.thebostonchannel.com/r/13744337/detail.html; Goodall, J., & Hawks, C. (2005). *Crime scene documentation*. San Clemente, CA: LawTech Custom Publishing.

Criminal investigators must learn to look beyond the horror of the crime and evaluate what occurred from a scientific and analytical point of view:

1. Using the chapter material and the information about this home invasion, what do you think about the role of the investigators and the solvability of this crime?
2. Please explain what you have learned in this chapter about the history of criminal investigation that might be relevant to this case.

LEARNING
OUTCOMES

1

Explain the history of criminal investigation.

Our current system of criminal investigation is a product of our English heritage and occurrences and events taking place here in the United States. Not only is it significant that our English ancestors paved the way for our current system of criminal investigation, but the many scientific advances have slowly but surely led us to a system whereby the identification of perpetrators is more accurate, thus providing justice for the victims and their families and decreasing the chance that an innocent person might go to prison.

1. Why were criminal investigations and apprehension difficult in the American frontier?
2. Where was the first professional police force established in the United States?
3. Why is the creation of the FBI considered one of the most significant developments in the history of law enforcement in America?
4. What is the role of a forensic pathologist in criminal investigations?

thief catchers People recruited from the riffraff of the streets to aid law enforcement officials in locating criminals during the European Industrial Revolution.

Bow Street Runners A group of English crime fighters formed by Henry Fielding during the eighteenth century.

bobbies The name of London Metropolitan Police Department officers; they were named this after Home Secretary Sir Robert Peel.

Scotland Yard One of the first criminal investigative bodies originally formed in England in the mid-nineteenth century.

rogues' gallery A compilation of descriptions, methods of operation, hiding places, and the names of associates of known criminals in the 1850s.

Mulberry Street Morning Parade An event in 1966 by Thomas Byrnes who showcased all criminals arrested in the previous 24 hours.

National Academy An extensive management training course sponsored by the FBI.

National Crime Information Center (NCIC) Criminal data maintained by the FBI on wanted persons and property stolen from all 50 states.

Drug Enforcement Administration (DEA) A United States federal law enforcement agency tasked with drug offenses such as trafficking, manufacture, and abuse of illicit drugs.

Hans Gross A public prosecutor and later a judge from Graz, Austria, who in 1893 wrote the first major book describing the application of scientific disciplines to criminal investigation.

Edmond Locard A Frenchman who in 1910 established the first forensic laboratory.

Locard's exchange principle A scientific principle that holds that the perpetrator of a crime will bring something into the crime scene and leave with something from it, and that both can be used as scientific evidence in a criminal investigation.

Bertillon system An early criminal identification or classification system based on the idea that certain aspects of the human body, such as skeletal size, ear shape, and eye color, remained the same after a person had reached full physical maturity. This system used a combination of photographs and standardized physical measurements.

anthropometry Another name for the Bertillon system that was based on the idea that certain aspects of the human body, such as skeletal size, ear shaping, and eye color, remained the same after a person had reached full physical maturity.

dactylography The study of fingerprints.

LEARNING
OUTCOMES

2

Identify how research affects criminal investigation.

In many law enforcement organizations, the crime-scene technician is the person trained to respond to the scene of a crime and identify, collect, and preserve evidence. The investigation is then taken over by the criminal investigator, who responds in a reactive or preventive manner. Investigations can also be of a proactive nature.

1. As it relates to criminal investigations, what were the most significant recommendations following the RAND study?

2. As it relates to criminal investigations, what were the most significant recommendations following the PERF study?

3. In terms of findings/recommendations, what is the primary similarity among the three studies noted in the chapter?

serology The scientific analysis of blood.

forensic pathology A subspecialty of pathology that focuses on determining the cause of death by examining a corpse.

LEARNING
OUTCOMES
3

Explain the current research in criminal investigation.

Empirical studies addressing critical aspects of criminal investigation have been conducted over the years. Included in the critical outcomes of this research are instructive.

1. What are the expanded responsibilities for patrol officers?
2. What resources should be increased to process forensic evidence at crime scenes?
3. In what ways can criminal investigations be conducted more efficiently?
4. In what ways should police departments develop policies and guidelines to regulate the use of evidence technicians in routine cases?

Chapter summary: this introductory chapter lays the groundwork for our understanding of the criminal investigative process. In addition to identifying the meaningful historical roots of criminal investigation the chapter also discusses contemporary research in the field. Salient research studies have been conducted by the Rand Corporation and the Police Executive Research Forum both of which identify recommendations for more efficient and effective criminal investigations. This chapter also discusses the investigative process as it relates to inductive and deductive reasoning. Inductive and deductive reasoning is a process by which information is assimilated by the criminal investigator to identify the most meaningful evidence and the most likely suspects in an investigation. Finally, solvability factors and an introductory discussion regarding the preliminary investigation is discussed in this chapter.

LEARNING
OUTCOMES
4

Discuss the objectives of criminal investigation.

Because of the changing nature of criminal activity and the role of the investigator, the objectives of the criminal investigation may be more complex than people imagine. These include detecting crime, locating and identifying suspects, and documenting and preserving evidence. The premise behind the criminal investigation field is that people make mistakes while committing crimes. For example, a burglar may leave behind broken glass or clothing fibers, or a rapist may leave fingerprints,

skin tissue, semen, or blood. As a result of these oversights, evidence of who they are is also left behind.

1. What are the primary objectives of the criminal investigation?
2. What is the basic premise of the criminal investigation?
3. What are the three primary resources used by a criminal investigator?
4. What are some mistakes criminals often make when committing crimes?

LEARNING
OUTCOMES
5

Distinguish between inductive and deductive reasoning.

After an initial evaluation of evidence in a case, the criminal investigator draws conclusions through a process of reasoning. This process is typically achieved through inductive or deductive reasoning. Inductive reasoning is sometimes called inductive logic; it is reasoning that takes us beyond what we know (our current evidence or information) to conclusions about what we don't know. Deductive reasoning is reasoning based on specific pieces of evidence to establish proof that a suspect is guilty of an offense.

1. Why is critical thinking an important skill for criminal investigators?

2. How can critical thinking and the scientific method be used simultaneously in problem solving?
3. In criminal investigations, what is the danger in using inductive reasoning over deductive reasoning?
4. How does the concept of abduction apply to criminal investigations?

inductive reasoning Reasoning in which the premises seek to supply strong evidence for (not absolute proof of) the truth of the conclusion.

deductive reasoning The process of reasoning from one or more general statements or premises to reach a logical conclusion.

abduction The process of proposing a likely explanation for an event that must then be tested.

LEARNING
OUTCOMES
6

Explain the expanding role of the patrol officer as criminal investigator.

The traditionally limited responsibility of the patrol officer has expanded to include locating witnesses, conducting interviews, recording information about the crime scene, and initiating and completing investigations. Most police administrators agree that these changes have been beneficial to the department.

1. What are the fundamental components of law enforcement?

2. What are the three modes of investigation?
3. What is the difference between reactive and proactive responses?
4. How has the role of the patrol officer changed over the years, and what benefits to law enforcement in general and in criminal investigations specifically has this change produced?
5. What qualities do professional investigators have in common?

reactive response An approach to crime solving that addresses crimes that have already occurred, such as murder, robbery, and burglary.

proactive response An investigative approach to crime solving in which criminal activity is investigated before it occurs.

preventive response Prevention through deterrence that is sometimes achieved by arresting the criminal and by aggressive prosecution.

LEARNING
OUTCOMES
7

Discuss the solvability factors in a criminal investigation.

Solvability factors are identification leads that have proven to be valuable and are most likely to result in case solution. Examples include availability of witnesses, information about the suspect, significant physical evidence, and judgment by the patrol officer that there is enough information to continue an investigation.

1. What are three primary solvability factors in criminal investigations?

2. How does the patrol officer guide the direction of an investigation?

3. A police department's reporting system is defined by which two basic components?

solvability factors Factors that logically guide the investigation and are likely to result in case solution.

LEARNING
OUTCOMES
8

Describe the preliminary investigation process.

For many criminal investigations, the investigative process begins with the preliminary investigation. It is during this phase that patrol officers typically arrive at the scene before the investigator and conduct some extremely important duties. These duties include securing the scene, arresting any perpetrators, providing first aid to the injured, and identifying and separating witnesses. Typically, the officer conducting the preliminary

investigation will take some notes and turn over all information to the criminal investigator upon his or her arrival.

1. What are the objectives of the preliminary investigation?
2. Why are preliminary investigations important in the investigative process?
3. What are the steps in the crime-scene response?
4. Who are the most important witnesses to be interviewed by a first responder?

Additional Links

<http://content.met.police.uk/Home>

This is the official website of the Scotland Yard/Metropolitan Police in London. This site contains links to the history of Scotland Yard and the history of policing. Other links include archives, famous cases, news links, crimes, recruitment, and how to report a crime.

www.fbi.gov

This is the official website of the Federal Bureau of Investigation. This site contains links to the history of the FBI, including famous cases. In addition, visitors will find *Uniform Crime Report* statistics, reports and publications, videos, photos, news, most wanted lists, crime alerts, and jobs and internship programs, as well as fun and games links for teens and children.

www.aafs.org

The site of the American Academy of Forensic Sciences (AAFS) contains links and information on membership, news and current events, archives, resources for students including choosing a career, and colleges and universities that have forensic science programs.

www.nij.gov

The National Institute of Justice (NIJ) is the research, development, and evaluation agency of the Department of Justice. This organization's site includes links for publications, training, and courses for criminal justice professionals. The site also includes multimedia presentations.

2

“A fundamental premise of criminal investigation is that investigators have the ability to reconstruct the facts and circumstances surrounding each case.”

The Crime Scene: Field Notes, Documenting, and Reporting

- 1** Explain what specific field notes should be taken during a criminal investigation.
- 2** Identify the qualities of a good investigative report.
- 3** Identify the main components of a fact sheet or initial complaint.
- 4** Explain the correct methods for photographing the crime scene.
- 5** Summarize the legal precedents for the admissibility of photographs as evidence in court.
- 6** Determine what types of information should be included in a photographic log.
- 7** Explain the types of photography commonly used in criminal investigations.
- 8** Describe how crime-scene sketches are made.





A KILLER AMONG US

On January 8, 2011, shortly after 10 A.M., U.S. representative from Arizona Gabrielle Giffords was holding a public meeting outside a Safeway grocery store in Casas Adobes, a northwest suburb of Tucson, Arizona. The meeting was Giffords's first "Congress on Your Corner" gathering of the year. Giffords had set up a table outside the store and about 20 to 30 people were gathered around her when a gunman arrived, ran up to the crowd, and began firing an estimated 20 to 30 shots. The gunman was 22-year-old Jared Lee Loughner. The weapon he used was a 9mm Glock model 19 pistol with a 33-round magazine.

A total of six people were killed, including federal judge John Roll and Giffords's congressional aide and community outreach director Gabe Zimmerman. A nine-year-old girl, Christina Taylor Green, was also pronounced dead at the hospital. Fourteen others were wounded. Other victims with gunshot wounds were transported to the Northwest Medical Center; four people were listed in critical condition. Twenty people were shot, of whom six died. Giffords was shot in the side of the head, but miraculously survived.

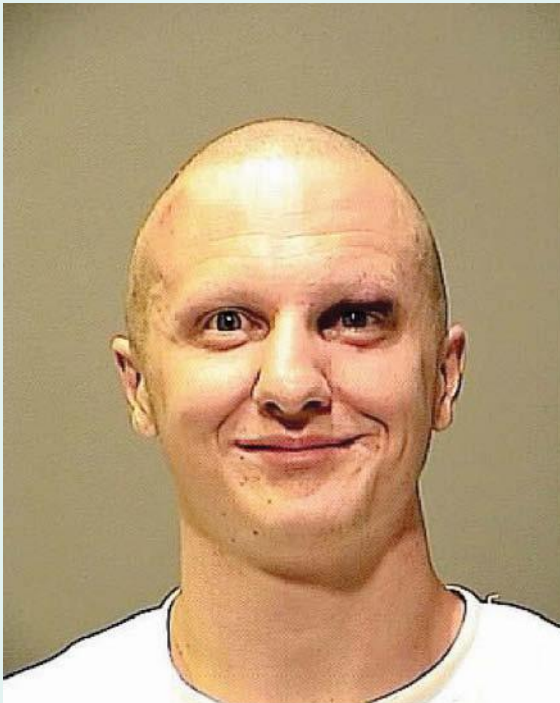


Photo of Jared Lee Loughner following his arrest in January 2011.

Pima County Sheriff's Office/Handout/Corbis



Monty Brinton/CBS Photo Archive/Getty Images

Television shows such as CSI are popular because of growing interest in scientific crime detection methods used to solve crimes.

The investigation into Loughner's background revealed some "red flags" from fall 2010. Specifically, from the time Loughner showed up for his first algebra class at Pima County Community College in the summer 2010, he began to experience conflict with students and teachers alike.¹

The 2011 Arizona shooting represents a high-profile incident that consumed the popular media for days. Because of intense emotion stemming from the killings and the persons wounded, it is clear that a proper and thorough investigation of the incident would be essential. Even though the shooter in this case was captured, a number of important questions still remained unanswered. To what extent could the actions of Jared Loughner have been prevented through timely intervention? Moreover, considering the confusion and turmoil following the shooting, how can the scene of the shooting be best preserved and how can important evidence such as witness statements and physical evidence be best identified and preserved?

DISCUSS To what extent could the actions of Jared Loughner have been prevented through timely intervention? Moreover, considering the confusion and turmoil following the shooting, how can the scene of the shooting be best preserved and how can important evidence such as witness statements and physical evidence be best identified and preserved?

A fundamental premise of criminal investigation is that investigators have the ability to reconstruct the facts and circumstances surrounding each case. This is generally accomplished through well-written reports, photographs, and crime-scene sketches. Accompanying such evidence are the ever-important laboratory

testing of objects seized from the scene and supportive testimony by investigators and laboratory technicians. With the exception of unusual circumstances, such as the removal of injured parties or inclement weather at a crime scene, all evidence at the scene is properly recorded before any objects are collected or removed.

► The Role of Field Notes in a Criminal Investigation

LEARNING OUTCOMES 1

Explain what specific field notes should be taken during a criminal investigation.

When one thinks of a police officer taking field notes, the Hollywood portrayal of an officer writing down bits and pieces of information on the

inside of a matchbook cover may come to mind. Unfortunately, in some cases, this is a reality, but it is not the prescribed method of note taking. **Field notes** have many benefits for both the officer and the department. Most notes result from interviews, but there are other uses as well. For example, notes may be the most important step in the initial documentation of a crime scene. An investigator's field notes are his or her most personal and readily available record of the crime-scene search. It is difficult, if not impossible, to recommend a particular form of field note taking because most officers usually adopt their own style. However, one objective of this process remains clear: The notes taken at a crime scene must adequately reflect the condition and state of the location at the time of the crime-scene search.

When to Take Notes

The investigative process begins as soon as an officer gets a call to the scene of a crime. Accordingly, the note-taking process also begins at this time. Officers should remember that note taking is a continual process that occurs throughout the duration of an officer's involvement in an investigation. Some victims or witnesses may be intimidated by an officer taking down what is said during an interview. If it appears that this is the case, the investigator should take the time to explain the importance of brief notes and how they will benefit the overall investigation. If a subject simply refuses to talk while comments are being recorded, the officer can wait and make the required notes immediately after the interview.

What to Write Down

It would be ideal if investigative notes could begin with the assignment of the officer to the case and follow through in a logical flow of events to the culmination of the investigation. In reality, however, notes most likely are written in the order in which information is learned, resulting in fragmented bits of information being logged. This is not unusual and should not pose a problem for the investigator provided that notes are complete and well organized. Remember to get the specifics.

When first encountering a witness or victim, it is important for the investigator to allow the person to state in his or her own words what occurred. This is best accomplished by asking the simple question, "What happened?" It is likely that much of the desired information will be communicated to the investigator at that point. After the subject provides his or her initial explanation, then more specific questions should be asked to pinpoint exactly what occurred. Most information can be learned with answers to who, what, when, where, why, and how. For example, certain specifics should be included in the note-taking process. Figure 2-1 identifies examples of essential topics of information.



68/George Doyle/Ocean/Corbis

Police Officer Taking Notes.

Developing a Note-Taking System

It is advisable for a system of note taking to be developed to allow an officer greater swiftness in his or her interviews. For example, initials can be used in place of complete names. This can be illustrated by using "S" for suspect, "V" for victim, "W-1" for witness number 1, "C" for complainant, and so on. When adopting this system, officers should be careful not to move into "shorthand," making it difficult for others to interpret what the notes are trying to say. Remember that field notes may be required later as evidence in court. Figure 2-1 shows sample crime-scene field notes, and Figure 2-2 notes essential information to include.

Field Interview Cards

One unique and successful method of documenting information on the street is through the use of **field interview cards** (FI cards). These are used when patrol officers happen on people or circumstances that appear suspicious, but there is no sufficient cause for arrest. The FI card is used to document names, addresses, and other pertinent information. At the end of the officer's watch, he or she turns in the FI cards, and they are filed for future reference.

► Writing the Official Investigative Report

A criminal investigator's written report represents the final product of his or her investigative efforts. The report informs others of what

LEARNING OUTCOMES 2

Identify the qualities of a good investigative report.

	10-21-16
○	Case # 1122-O7
	Time of violation: 2015 hours
	Burglary – 1210 Watson Place, St. Louis, MO
	Victim – Thomas Thompson
	Phone – (314) 234-1212
	Mr. Thompson stated that he arrived home at 1930 hours.
	He stated that his front door was ajar and a window was broken
○	and opened.
	Mr. Thompson stated the following items were missing from the
	residence:
	1. Samsung 55" LCD flat screen television – serial number not known,
	black in color, value \$900
	2. Gold watch with brown leather band. Wittinauer Longlife
	brand, no serial numbers
○	

FIGURE 2-1 Sample Crime-Scene Field Notes.

events have occurred and provides a permanent record useful in numerous ways as evidentiary matter at trial, intelligence information, and crime-analysis data. To many readers, the report represents their only opportunity to learn about the background of the investigation. Consequently, it is essential that the report be written so that it can be understood and, more important, so that it is not misunderstood.

Many police officers write mediocre reports. A poorly prepared report can easily become evident when one officer tries to read another officer's reports and tries to interpret what is being said. If an official report is difficult to understand, the complaint-issuing process will be bogged down, and it will be difficult for the prosecutor to decipher the facts and circumstances of the case. In addition, a poorly written report gives the defense attorney a tool to use during trial to confuse the officer's testimony and to muddle the issue.

Investigators should remember that the official police report is the backbone of the criminal prosecution process. It is a permanent record of the complaint and of the facts and events leading up to the arrest of the suspect. An important three-pronged rule to remember is that official reports should be factual, thorough, and to the point because they will be under close scrutiny when the case goes to court. Box 2-1 outlines the steps in report writing.

Factuality

The police report must be prepared carefully so that it accurately reflects all pertinent facts learned by investigators. Special attention should be given to dates, times, and other details of the investigation. In addition, these facts must be written in such a manner that the reader of the report can easily understand them.

- 1 **Dates, times, and locations.** Record these in the notes. Officers should also include from whom they received the assignment. Supplementary information should include the exact time of arrival at the crime scene, the location of the scene, lighting and weather conditions, and the names of other officers contacted and other persons present at the scene.
- 2 **Description of victim.** This information should include all identifiers of the victim, including name, age, Social Security number, height, weight, color of hair and eyes, and so on. In addition, clothing should be noted as to style (if possible) and color of garment. Special attention should be given to extemporaneous identifiers such as complexion, tattoos, and scars.
- 3 **Wounds on the victim.** Notes regarding the type and location of wounds should be documented carefully. It is important to emphasize descriptions of the wound, and if it is a bruise, its color should be noted.
- 4 **Overall description of the crime scene.** Investigators must note anything unusual at the crime scene. This includes items damaged or in disarray, items that seem misplaced or that don't seem to belong in the scene, open (or closed) doors or windows, and so on.
- 5 **Notes on photographs taken of the scene.** For every photograph taken of the scene, the F-stop, shutter speed, distance, and direction of the photo should be logged in an officer's notes. Also included should be the time and location of each photograph. In the event that a video camera is used to document the scene, an officer's notes should include the type of camera and any special attachments that may have been used.
- 6 **Type and location of each piece of evidence.** Document adequately the location of each piece of evidence found at the crime scene. This includes its description, location, the time it was discovered and by whom, the type of container in which it was placed, how the container was sealed and marked, and the disposition of the item after it was collected.
- 7 **Absence of items.** Document items not at the crime scene that probably should be such as certain articles of clothing missing from the deceased or certain home furnishings absent from the scene.

FIGURE 2-2 Information Needed in Properly Written Field Notes.

- 1 Mar. 23, 2016 - etc.
- 2 Jane doe, ~20 years old, SSN, 5'2", brown hair, brown eyes, etc.
- 3 Gunshot wound ~1/4" in diameter to the left temple and ~1 1/2" from the left eye. A dark gray circle ~1/4" in diameter surrounds the entire wound.
- 4 Broken window, open door, etc.
- 5 Photo of window: F18, 1/6" sec., 6', facing outside.
- 6 9mm cal. S & W model 669 semiautomatic handgun, nickel plated with wooden grips, Serial #36348. 71 inches from the S.W. corner of the master bedroom, 16 inches E. of S. edge of W. door. Marked "WT" on evidence tag placed on trigger guard. Placed in manila evidence envelope, sealed with tape, and marked #11 WT 7-21-16 at 03:25 hrs. Released to Officer Mary Schultz, laboratory firearms examiner, 09:35 hrs. 7-21-16 WT.
- 7 Missing TV, stereo system, etc.

It is important that the police report be factual and not contain hearsay information, speculation, or opinions of the investigator. Facts are generally defined as information learned personally by the investigator and not conclusions presumed by him or her. For example, if an informant tells the investigator that a suspect is a heroin addict, this information should be verified before stating it as fact in the official report.

After the information has been verified, the investigator should include in the report how the information was validated. For example, were undercover officers used to converse with the suspect, or were court orders obtained for disclosure of

medical records? In the event that verification is not possible, the investigator should mention that the information was "alleged" to be true by the source (e.g., confidential informant, witness, newspaper article).

BOX 2-1 STEPS IN REPORT WRITING

1. Collect information about the crime scene, informants, and witnesses.
2. Take complete notes.
3. Organize the information.
4. Prepare the report.
5. Proofread and evaluate the report.

Think About It...

Many investigations, especially those that are high profile with considerable media attention, require a speedy response. This is because perpetrators can still be on the scene, witnesses may still be present, evidence may be contaminated or otherwise destroyed if not promptly collected, and so on. For those investigations where many investigative steps are taken in a short period of time, what are some consequences of either not responding on a timely basis or not properly or thoroughly processing the scene?



Detective Collecting Evidence.

corepics/Shutterstock.com

Thoroughness

All facts learned pertaining to the investigation should be included in the official report. This practice is necessary for completeness of the report and for the credibility of the investigation. For example, if an undercover officer was offered illegal drugs and declined to purchase them, the offer should be documented in the event that the dealer later claims to have sold the drugs to the officer. In addition to the narrative aspect of the report, copies of related documentation should be attached with every report. For example, if investigators are looking at a check-kiting ring, copies of the suspect's checks should be attached to the report. Additionally, if surveillance photos are taken, they should become part of the official report.

The report should also reflect the **chain of custody** of all evidence in the case. For example, in a drug case, the report should reflect how the drugs were collected, who handled them after seizure, where and how they were stored, and who now has possession of them (e.g., the crime laboratory).

Getting to the Point

The best investigative report is one that is not only thorough but also concise. In preparing such a report, the investigator must be aware that although details and completeness are important, excess information can bog down the report and possibly confuse the reader.

Accuracy and Objectivity

An investigator's ability to report accurately is highly dependent on both the ability to conduct an objective and thorough investigation and to express the results of this inquiry in writing. In order to report objectively, the investigator must distinguish between facts and **hearsay evidence** and be able to relay exactly a factual accounting of the incident.

It is essential that all relevant facts and details should be presented in an unbiased manner without any indication of the officer's feelings or opinions about the case. Writing the report should be considered as an extension of the investigation in which the officer is basically an inquirer whose purpose is to gather information. Even when conclusions or opinions are called for in the report summary, the officer must make sure that such judgments reflect his or her thinking and not his or her feelings. The officer must be sure to clearly indicate when a statement is his or her opinion.

Word Choice

The narrative portion of the report, in which the reporting officer brings the facts together in a story form, requires the effective use of language. In writing the narrative section of the report, the officer should be concerned with two basic items: presentation and diction (choice and use of words). As a rule, the most effective report presentation is a chronological narrative, in which events are described as they occurred from the officer's perspective. Accordingly, the narrative should unfold

from the point when the officer received a service call or otherwise became involved in the case.

One of the most difficult aspects of writing well is the proper choice and use of words. This is especially true with police reports because accuracy and brevity are all-important characteristics. The following are suggestions for writing effective police reports:

1. Avoid the use of unnecessary words; for example, in "the aforementioned suspect," the word "aforementioned" is not needed. If more than one suspect is involved, they should be identified in some other way.
2. Avoid the use of elaborate or unfamiliar words when a small or commonly used term will do; for example, "the victim is cognizant of" should be written as "the victim knows."
3. Use specific words rather than vague terms; for example, "the victim said she proceeded to the living room" should be written as, "the victim said she (walked, ran, limped, hurried, etc.) to the living room."
4. Try to use the active voice; for example, "The message was received from the dispatcher at 10:40 A.M." can be improved by stating, "I received a message from the dispatcher at 10:40 A.M."
5. Use standard abbreviations; other persons will not necessarily understand individual abbreviations.
6. Write short, simple sentences whose meanings are clear and direct. Do not try to crowd many ideas into one sentence.
7. Avoid the use of double negatives such as, "No evidence could not be found at the crime scene." At the least, such expressions are confusing and, in some cases, the double negative can be misunderstood as a positive statement.
8. Be sure modifiers, adjectives, and adverbs are used sparingly because these words usually do not contribute much to a fact-finding report.
9. Use standard English rather than jargon or slang except when quoting witnesses, victims, and suspects.

► The Main Components of a Fact Sheet or Initial Complaint

The report should be structured so that the reader is able to learn pertinent information quickly and succinctly. To best accomplish this, the effective organization of information on the report is critical.

LEARNING OUTCOMES
3 Identify the main components of a fact sheet or initial complaint.

Documenting Interviews

In forming questions for taking reports, the criminal investigator is much like a newspaper reporter. The investigator needs to know the answers to questions who, what, when, where,

and how. More specifically, the following items are considered essential information:

- **Preliminary information.** This category of data includes the time and manner in which the complaint was received; identification of the location, time, and nature of the crime; and full identification of the victim.
- **Witnesses.** This grouping refers to information provided by victims, witnesses, or other persons at the crime scene.
- **Physical evidence.** The search for a discovery of evidentiary items must be included in the officer's records.
- **Modus operandi.** This is an extremely important category because, in many cases, the method of operation is a clue to determining the suspect.

Obtaining information from victims, witnesses, or bystanders is more demanding than recording conversations at a crime scene. Interviews involve a variety of skills, both communicative and investigative, that require the investigator's full attention.

The use of basic interviewing techniques opens up communication between the investigator and the person being interviewed. However, the investigator must be skilled at forming questions and "digging" for information either temporarily forgotten or considered unimportant by the person being interviewed. At the same time, the investigator should guide the interview so that information flows sequentially and logically. This makes the investigator's job as recorder a much simpler task.

Conclusions that are unsubstantiated by fact should be presented as opinion. For example, "The witness heard gunfire in the vicinity of his home" should be stated as "The witness heard a loud noise that he believes was gunfire in the vicinity of his home."

As a rule, investigations are documented by the initial complaint (the face sheet) and supplemental reports (describing new findings). Formats for these reports are considered next.

Elements of the Report

- Who the officer was met by at the crime scene
- What the officer found at the scene
- What the officer did at the scene (e.g., administered first aid, notified immediate supervisor)
- Description of injuries to victim or suspect
- Type of weapon used
- Description of all evidence
- Names and identifiers of all suspects arrested
- Names of all witnesses
- Copies of written statements given by witnesses

The Initial Complaint

Also called the *face sheet* or *initial page*, the complaint depicts an "at-a-glance" summary of the investigation. This information includes the suspect's name and related identifiers as well as a brief summary of the facts and circumstances surrounding the case (e.g., times, dates, locations, who did what, who saw what, and what evidence was collected). The initial complaint is the first report seen by anyone examining the file of the investigation, so it is important to keep it direct and to the point. Although individual departmental policies dictate the precise manner in which the reports are organized, the items listed in Figure 2-3 are usually included.

Supplemental Reports

As the case progresses, investigators will undoubtedly develop new sources of information, such as new witnesses, physical evidence, and documents. As this information is gathered, a supplemental report is generated to update the case. The supplemental report is considerably longer than the initial complaint because it goes into much greater detail on pertinent aspects of the case. In fact, it is the supplemental report that incorporates the who, what, when, where, how, and (sometimes) why of the case.

The report begins with a brief synopsis of the subject of the report, which gives the reader an overall view of the body of the report. The main portion is the details section. As the investigator formulates this section, events are prepared in paragraphs and in chronological order. For example, a report of a drug purchase by an undercover agent should contain the following information in the details section of the report:

Type of offense (e.g., possession, distribution)

Date and time of offense

Location of violation (e.g., suspect's residence, parking lot)

Description of suspect's vehicle

Description of weapons possessed by suspect

Description of how the violation was discovered (e.g., through informant information, undercover agents, search warrants)

Who (undercover agent or informant) was wearing concealed transmitters and names of officers monitoring the conversation, if relevant

Description of evidence in the case (e.g., drugs, weapons, videotape of transaction, statement of informant)

Field test results of drugs seized

Each report must also reflect additional details of the case, such as the following:

Chain of custody of evidence

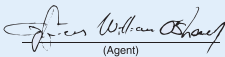
Statements made by suspects (before and after arrest)

How the suspect was identified

Names of all witnesses in the case (e.g., officers, informant [identify by number, not name])

- 1 **Type of crime.** Depending on the department, crimes are generally designated as crimes against property, crimes against persons, or vice crimes. In addition, they are indexed according to the specific act that is being alleged, such as robbery, burglary, or drug distribution.
- 2 **Date.** This is the date of the offense.
- 3 **Case number.** Before any paperwork is filed at the department, it must have a case number assigned by the records division. This number will be used on all subsequent reports in the investigation.
- 4 **Officer's name.** This is the investigator's full legal name (no nicknames), rank, and badge number.
- 5 **Suspect's name and address.** This includes the suspect's full legal name, monikers, addresses, date of birth, Social Security number, and any other pertinent information known about the suspect.
- 6 **Victim.** The name of the victim(s) and address(es). No additional identifiers are required. For vice cases, the victim part of the report will either remain blank or reflect the jurisdiction in which the offense occurred (e.g., the state of Washington).
- 7 **Witnesses.** This includes the names and addresses of witnesses of the crime.
- 8 **Synopsis of crime and investigation.** This section should be no longer than one paragraph and should contain all general details of the case.
- 9 **Details of crime and investigation.** This section is much longer than the synopsis because it encompasses all pertinent details of the investigation in a logical progression.
- 10 **Attachments.** This section includes a list of all evidence relating to the case. Included are drugs, weapons, statements by victims and witnesses, references to videotapes used by investigators, photos, and so on.

FIGURE 2-3 Information Included on a Complaint Form.

COMPLAINT FORM					
Note: Hand print names legibly: handwriting satisfactory for remainder.					
Subject's name and aliases		Address of subject		Character of case	
5 Baker, Shawn Willis		1234 Cutter Ct. St. Louis, MO 65203		1 Burglary	
Complainant		Complainant's address and telephone number		Complaint received	
4 Officer William O'Shay		City Police Department (555) 456-7899		<input checked="" type="checkbox"/> Personal <input type="checkbox"/> Telephonic Date October 21, 2016 Time 7:35 pm	
Race	W	Sex	<input checked="" type="checkbox"/> Male <input type="checkbox"/> Female	Birth date and birthplace	9/18/85
Age	25			Hair	Bm.
				Build	Av.
				Eyes	Blu.
				Complexion	Med.
				Weight	190
Scars, marks, or other data					
Tattoo on left forearm: "Ride to Live — Live to Ride"					
Facts of complaint					
9 Advised by radio at 1930 hours that a prowler was in the vicinity of 309 Watson Place in the city limits. Proceeded to the area and observed a white, older model Ford van parked on Watson Place in front of the residence at 309. Summoned backup and proceeded on foot to inspect the residence and discovered an open window on the north side. Paint chips and pry marks were visible on the window and on the ground.					
Standing to the side of the house, suspect Baker exited the dwelling at approx. 1935 hrs. as he was apprehended. In his possession were two bags, one a canvas bag containing a screwdriver, slim jim, and pry bar. In the second bag, which was a brown paper bag, a gold watch and three gold and diamond rings were found.					
Suspect was read his rights under <i>Miranda</i> in the presence of officers Larry White and Sandra Winslow. Baker then admitted illegally entering the residence and stealing the jewelry. Baker was transported by this officer to the city police department for processing and field notes were turned over to Detective Samuel Ramone for follow-up investigation.					
Baker's van, which was registered to him, was towed to the city impound lot.					
Action recommended					
 (Agent)					

List of property seized (e.g., cars, guns)

Copies of legal documents (e.g., search warrants, search warrant returns, vehicle seizure forms, informant statements) should be attached to the report.

► Methods for Photographing the Crime Scene

LEARNING OUTCOMES

4

Explain the correct methods for photographing the crime scene.

As with the use of crime-scene sketches (discussed later), the use of photographs in crime-scene investigations has been fundamental for decades. It is important to note that both photos and sketches are necessary in criminal investigations because photos may distort distance, color, and so on. Today, the practice of crime-scene photography has been extended to digital recorders to depict crime scenes. In this section, the term *photograph* (or *photo*) will refer to either or both forms of audiovisual reproduction.

Although the adage “a picture is worth a thousand words” might seem unrealistic, a visual portrayal of the crime scene clearly adds a dimension to both the investigation and prosecution of the case that no other medium can emulate. In fact,

without the benefit of pictures, a witness or juror may be influenced by past experiences, preconceptions, stereotypes, and biases in making decisions about a crime scene. Indeed, photos and videotapes may convey information to the court more accurately than verbal descriptions of the crime.

Photographs as Evidence

The principal requirements to admit a photograph into evidence are relevance and **authentication**. In general, a photograph is admitted into evidence at the discretion of the trial judge. In rare cases, a chain of custody is required, or the best evidence rule may be invoked if the photograph is offered for its truth and is the basis of a controlling issue in the case.

The most important requirement is authentication. Specifically, the party seeking to introduce the photograph into evidence must be prepared to present testimony that the photograph is accurate and correct. In most cases, the testimony need not be from the photographer; a qualified witness who has knowledge of the scene and can testify that the photograph accurately portrays the scene will suffice. Some courts will rule that a photograph is self-authenticating or presumptively authentic. If the authenticity of the photograph is challenged, it is usually a question for the trier of fact (e.g., the jury).²

Preserving Digital Images

From an evidentiary standpoint, digital images must be handled with special care and consideration to preserve their integrity as evidence. As a rule, digital images are stored on removable media such as Secure Digital (SD) cards and Memory Sticks™. Images saved to these storage media must be stored immediately, or as soon as reasonable, on a compact disc (CD) or other protected medium to create the “master disc.” Digital images contained on this master disc must not be altered or manipulated in any way. Of course, the master disc must then be properly stored and protected so that images can be viewed in the future. After the master disc is successfully made, the original medium contained in the camera may be erased and reused for subsequent investigations.

A “working copy” of the master disc can then be made for investigative purposes while protecting the original images contained on the master disc. Images contained on the working copy can be manipulated for investigative purposes. However, any changes or adjustments must be properly documented. Finally, the master disc must be safely maintained until such time as there is an official determination that there will be no future need for the images.³

What to Photograph

Extensive expertise in photography and audio electronics is always a clear benefit to a crime-scene investigator, but such training is not always required for good pictures of the scene. Any camera is better than no camera at all, and many relatively low-cost cameras come equipped with auto focus and rewind features. In any case, one important point to remember is that when photographing a crime scene, there can never be too many pictures. Depending on the crime scene, 100 to 200 photos may be typical for proper documentation. When using digital technology, it is vital for the investigator to back up crime-scene photos and digital video (as discussed previously).

Because digital media are relatively inexpensive, most departments can afford to take numerous photographs. In doing so, mistakes or problems encountered with one photo can usually be circumvented through the choice of others depicting the same scene or item. Photographs of the crime scene are usually taken in three stages: from the general view to the medium-range view to the close-up view. This approach enables a picture of all circumstances to be painted for jurors while leading up to the most critical part of the crime scene.

General Views

The general photograph is a sweeping view of the crime-scene area (i.e., an overall scene, such as the neighborhood, including angles from all streets leading up to the crime scene). It demonstrates what the scene looks like in its own environment. Examples are as follows:

- Photo of a bank that was robbed
- Photo of a house that was burglarized
- Abandoned “getaway” car in a wooded area

Photos depicting such scenes should be taken at a distance to reveal the natural surroundings of the location. In the case of a bank robbery, the bank should be photographed from across the street and from both sides of the building. This will give jurors a perspective of where the structure was situated and the location of possible escape routes.

Medium-Range Views

As we move in closer to the subject of the crime scene, additional photos should be taken. These photos should be taken at a distance no greater than 20 feet away from the subject or item being photographed. The intent of the medium-range photo is to depict specific items or objects in the crime scene. Some examples are blood splatters on the walls or an open window that served as the entry point for an intruder. Different lenses can be used to accomplish this phase of photography. For example, a wide-angle digital lens should be considered for a broad panoramic view of the scene. The purpose of the medium-range photography process is to allow jurors to link each print with the general crime-scene photos.

Close-Up Views

Moving from the broad to the specific, the last phase in photographing the crime scene is the close-up. These photos are taken at a distance of less than 5 feet using the zoom feature on the digital camera, and they should focus on small segments of a larger surface or on specific objects in the scene. Examples are bullet holes in the walls, weapons, blood-splatter stains, latent fingerprints, and so on. As with medium-range photos, these photographs should include some identifiable item from the medium-range photos to link the object(s) being photographed with the general crime scene. It is also important to note that close-up photos should be taken with and without a small ruler or other item, such as a coin, to provide perspective.

Other Hints

Because many types of evidence undergo significant changes at the crime scene, it is important for investigators to photograph the crime scene in a timely fashion. This should typically precede most other tasks of the crime-scene processing because objects cannot be examined adequately until they are photographed from every angle. Accordingly, it is important that all camera angles and settings be recorded on the crime-scene sketch.

Photos of the interior scenes should be taken to depict the entire area. This is accomplished by overlapping photos from one scene to the next and working in one direction around the room. In the use of video, a slow panorama of the crime scene is necessary. It is usually advisable to either use a tripod or attempt to keep the camera at eye level for all the photos. Fox and Cunningham offer several other considerations that crime-scene photographers should consider:⁴

- Approaches to and from the scene
- Surrounding areas (e.g., the yard of a house in which the homicide occurred, the general area surrounding an outdoor crime scene)