

FORENSIC INVESTIGATIONS AND CRIME SCENES

Rupendra Simlot, Ph.D., M.B.A.
and
Cortney Christopher (B.A. student)
Criminal Justice Program

THE RICHARD STOCKTON COLLEGE OF NEW JERSEY
Jim Leeds Road
Pomona, NJ 08240

INTRODUCTION

Crime scene investigation is an essential aspect of the criminal justice system. The emergence of criminal investigation dates back to the eighteenth century in England. During that time many governmental and societal changes were taking place which was contributing to the rise in crime.

During the eighteenth century two major changes took place in England which had an impact on how the emergence of criminal investigations took place, and founded the system of standards we follow today.

The Metropolitan police Act of 1829 created the first metropolitan police force and the first police headquarters that was created was Scotland Yard. Throughout the years leading up to 1878, changes from non-uniformed to fully uniformed officers took place. A select group of men were chosen to become specialized detectives, and a decrease in crime was starting to take place. In 1839 the City of London Police was established and is still in effect today.

Throughout this time, America began to establish its own police agencies in order to establish law and order throughout the country. The first American police force was formed in New York and established in 1844 but did not begin to work as a unified force until 1845. Although England set up the framework for the systems of government we have today, increasing interest in the forms of criminal control led to major advancements in criminal investigations as well as crime scene investigation.^{7, 14, 15}

This paper will examine all aspects of crime scene investigations in a criminal justice system.

TYPES OF CRIME SCENES

(a) Primary Crime Scene

In order to establish and reconstruct what occurred during the commission of the crime each officer has to reconstruct the area where the

primary crime scene is located. For the most part the primary crime scene is the location in which the crime occurred. It is also the location in which a body may be located when a murder has taken place.

(b) Secondary Crime Scene

The secondary crime scene is all of the surrounding area outside of the primary crime scene. This officer examines and collects evidence that related to the scene of the crime. If the crime took place in the bedroom of a home the secondary crime scene would be all of the other rooms of the home as well as the entry and exit areas in which the suspect may have left fingerprint or footprint evidence. The officer also is required to search the surrounding areas of the premises in order to ensure that evidence has not been overlooked.

FIRST OFFICERS ON CRIME SCENE

When the first officers arrive on the crime scene, they have to be prepared for anything that could possibly have taken place or will take place while they are present. They must institute control and guidance as soon as they arrive in order to be able to establish a plan of action for the rest of the investigation scene. The plan of attack for the officers should include handling any emergencies first, securing the scene to preserve evidence, and beginning the investigation at the scene.

Officers must be prepared for any situation that may arise before or while they are at the crime scene. Emergency situations include, but are not limited to, seriously injured victims, dangerous suspects, and life or death situations. If a suspect is still on the scene and there is a risk that they may harm the officer or other victims, the first option is to apprehend the suspect in order to move forward into the investigation. If the suspect has fled the scene then the victim is the first priority.

In order for the investigation to continue, the

(Continued on page 6)

(Continued from page 5)

scene of the crime needs to be secured to protect and preserve evidence along with determining the primary and secondary crime scene. The first officer on the crime scene is responsible for taking written notes of what the crime scene looked like upon arrival. Unless there is an emergency, no other action should be taken until the scene is secure. The condition of the crime scene upon arrival is a crucial piece to the continuing investigation of the crime. A record of time when the officer responded to the scene and when different steps were taken at the scene is very critical to preserving the initial condition of the scene. The scene should be undisturbed as much as possible unless otherwise needed to conduct the investigation. A record of movement around the crime scene is to be recorded as well. If there are any medical response units entering and exiting the scene their movement should be recorded in order to keep the contamination of evidence to a minimum. After the scene has been secured and all the immediate officers and examiners are on the scene no other officers or personnel should be allowed onto the scene unless directly related to the investigation. This is done to protect the crime scene and protect crucial evidence. If there has been a murder, the first officer must explain to family members and relatives what has happened in a delicate manner, but must not allow them to enter the scene. A guard should be kept at the entrance of the scene to ensure security and not allow anyone to enter. The scene must be protected and secure until the preliminary investigation has been completed and all the evidence is secure.^{5, 6, 14}

CRIME SCENE INVESTIGATION

The crime scene investigator is required to hold many positions at the crime scene and fulfill many tasks in order to allow for the processing of the scene to stay under control and processed correctly. No matter what time the call is received by the investigator, they are required to respond. The investigator must physically secure scenes of any crime, must be able to read over the evidence collected and the sketches that have been made and be able to reconstruct the events of the crime, and be able to give substantial direction to other investigators and officers on the scene of the crime. Throughout the investigation of the crime scene, the investigator is in charge of calling in outside services as needed in order to help with processing the crime scene. The hardest task the investigator will face is being able to go over all of the evidence and be able to process it without any mistakes in order to prove guilt or innocence in a court of law.^{2, 11, 12}

Scene Statements

After the scene has been secure, statements should be taken from victims and witnesses to find out the details behind what had taken place at the crime scene. When a suspect is taken into custody at the scene, they must be detained and questioned about what had taken place at the scene of the crime. Statements should be recorded within the officer's notes and should be signed by the person that made the statement in order to make sure that there was not misinterpretation during the time the statement was taken.

Crime Scene Photography

Officers at the scene of the crime are required to document and establish what took place at the crime scene. In order to do so they must photograph the scene to show exact locations of evidence and surrounding areas of the crime scene.

When an investigator is beginning to photograph the scene of the crime they must include specific areas of interest and different angles in which each photograph is taken. The investigator must take close-up pictures of the entrance and exit points of the house to document any marks that may have been made by the perpetrator or any evidence that may have been left behind at the locations. After the evidence and the body is removed from the crime scene, all the areas underneath the evidence must be photographed. This is to document any marks left behind or any stains there may have been from a body at the scene. If there are blood stains left from a deceased body, the blood should be documented using color film. If there are latent fingerprints at the scene of the crime they should be photographed before they are removed. In the process of lifting the prints there is a chance that they may be destroyed and the photograph will be the only evidence left to provide you with information as to who may have committed the crime.^{7, 12}

Sketching the Crime Scene

The investigator and officers should keep free hand drawings of the crime scene which are commonly referred to as crime scene sketches in order to reconstruct the crime scene. Included in these drawings should be the layout of the scene as well as positioning of windows, furniture, outside surroundings, and location of the body. Positioning of the body and surrounding evidence should be carefully documented in these sketches in order to provide an overview of where and how things may have occurred with the crime. After the layout has been established and the sketch has been drawn measurements of the location are to be taken in order to get the scale area in which the scene encompassed. When all of the items

(Continued on page 7)

(Continued from page 6)

are photographed, documented, measured, and the investigator may choose to have the findings made into a formal diagram that will show all of the evidence and reconstruct what took place at the scene of the crime.

Every investigator must be able to explain what is present in each sketch taken at the crime scene without much complexity. When viewing the sketches one should be able to determine what has taken place without much questioning. Included in the crime scene sketch should be the investigator's entire name, rank, and shield number to ensure proper identification of the investigator. The date and time as well as what type of crime had taken place must be recorded. Legends must be included to be able to identify the signs and symbols being used on each sketch. All major items of physical evidence and their location in relation to the crime scene must be included in the crime scene sketch. Any other names of investigations that helped in measuring the scene and the address of the crime scene must be included to ensure that the sketches are exact.^{7, 12}

Search Patterns at the Crime Scenes

After securing the crime scene, the search method for evidence must be selected. There are five alternative methods which can be applied to the crime scene. In order to determine the best method, the entire area of the crime scene must be taken into consideration in order to ensure evidence will not be contaminated or destroyed during the search.

Spiral Search Pattern

The spiral search pattern is a search technique utilized by one officer. This pattern is most effective when used during outside searches of the premises of the crime scene. The officer must pick a start and end point in a search to locate evidence. The officer should start from the outside of the central point and work toward it in order to not destroy any evidence that may be found.

Strip Search Pattern

This search pattern involves at least two officers and the area is sectioned off into north and south regions. It is also divided into east to west strips to conduct a thorough search of the premises. The officer's section off lanes in which they will travel collecting evidence as it appears. Once they have chosen a starting point they will move towards the end of the lane and repeat back down the next lane. They continue this pattern until the entire area has been searched. Upon finding a piece of evidence they must stop the search and properly collect it. Only after the evidence has been properly collected can

The search continue.

Grid Search Pattern

This technique allows the officers to conduct a more thorough search. It is much more time consuming than the other patterns but it *allows for critical pieces of evidence to be located* in major crimes. This type of search pattern lessens the risk of evidence being overlooked.

Zone Search Pattern

This search pattern consists of sectioning a room or area into four equal parts. Each section is assigned one officer and allows for collecting trace evidence. It is used for thorough investigations when trace evidence is a critical key to solving a case. This search technique can be applied either indoors or outdoors. It is up to the discretion of the officers to decide. This method of search is not commonly utilized.

Pie or Wheel Search Pattern

This type of search pattern entails dividing the area into six sections allowing for officers to look closer for trace evidence. These patterns of searching the crime scene allow for officers to collect crucial evidence and package it properly in order to process the crime scene more efficiently.

Examination of Body at Crime Scene

At this point during the investigation the officer misdocument every aspect of the body that has been found. They must record where the body was found, at what time it was located, the exact positioning of the body, as well as any marks, fluids or discolorations that may have been found on the body. Photographs of the body and the wounds must be carefully documented. The investigator must not move the body. They must examine it without ruining any potential evidence. The investigator must take detailed notes about what the body looked like, what marks were on the body and what the victim was wearing at the time of their death. The investigator should locate all visible wounds and document them at once. If there is blood visible on or around the victim it must be documented and photographs must be taken.¹²

Collection of Evidence

After the scene has been secured, emergencies taken care of, and witness statements have been taken, evidence collection can begin. The most crucial pieces of evidence must be collected first. These pieces of evidence are usually fingerprints which can be lost or contaminated, footprints that can be overlooked, and hair,

(Continued on page 8)

fiber, and blood evidence. All of the items that have been found must be documented and photographed. As each item of evidence is located on the scene the officer should mark the areas that it was found and collect the evidence by placing it in an airtight container, envelope, or bag depending on the type of evidence found. Liquids should be stored and transported in sealed containers to ensure that it will not leak or spill and become contaminated. When collecting wet materials the officer must remember that they must be stored in a plastic container and must be removed to air dry within two hours of collection from the scene.¹³

Fingerprints Evidence

Fingerprint evidence is a key component in linking a suspect to the crime scene as well as helping to prove guilt or innocence at a criminal trial. In order to lift the fingerprint the officer must use gray powder, black powder, or black magnetic powder. Polaroid 665 black and white film loaded in a Polaroid CU-5 camera with detachable flash should be used to make one-to-one photographs of prints which do not readily lift. Latent prints are left by the contact of the palm or surfaces of the hands and/or bare feet of a person are probably the most valuable piece of evidence at any crime scene.^{12, 13}

Blood Evidence

Blood evidence may be found at many points at the crime scene. It may be located near the victim, on the entry or exist points, or on the ceiling or walls. There are many other places in which blood evidence may be found but no matter where it is located it must be collected. When blood evidence is collected the officer must document the area that it was found, the physical state in which it was collected, the amount that was present at the time of collection, as well as the pattern of the stain when it was found. Blood evidence should never be left in extreme temperatures during the rest of the investigation. It should be removed and left at room temperature in order to preserve its natural state. When the time period of collection is extended past twenty-four hours the blood evidence must be kept either frozen or in a refrigerator to preserve its natural state. If blood evidence is found on an object that can be removed from the scene of the crime the entire item can be packaged and shipped to the lab in order to evaluate the evidence found and reduce the chance of contamination of the evidence.⁷

Ballistics Evidence

Ballistics is the identification of firearms, bullets, cartridges, and shotgun shells. The officer must document and locate any bullet holes that may be at the scene. When a gun is located at the scene, the officer should document the location and positioning of the gun. Casings and bullets should be collected in order to determine from what weapon they may have come from. Documenting the make, model, and serial number of the weapon should be commonplace.⁵

Footprint Evidence

In order for the officer to investigate and collect shoe print evidence they must first photograph the print to preserve the state in which it was first found. One-to-one photographs should be made using a tripod, ruler, and level. The flash should be held at an approximate 45 degree angle from the surface containing an impression. Two-dimensional impressions refer to prints left at the scene that may have been on paper, in paint, blood, or on human skin. These types of prints can not be cast and the best way of documenting them is through photography. Three-dimensional impressions may be found on carpeting, in mud and snow. In order for investigators to be able to document this type of impression they must photograph and document their location at the crime scene as well as casts the impressions.^{8, 13}

Trace Evidence

Trace evidence is explained simply through Locard's Exchange Principle which states that whenever two objects come in contact, a transfer of material will occur. The trace evidence that is transferred can be used to associate objects, individuals, or locations. Trace evidence includes, but is not limited to, hair and fiber evidence, drugs, soil, glass, and paint evidence. When officers are unable to locate evidence at the scene they apply luminal to the area and turn on an ultra-violet light or various wavelengths in order to make the evidence visible to the eye.^{7, 9}

PACKAGING, TAGGING AND CHAIN OF CUSTODY OF EVIDENCE

When items of evidence are found at the scene of the crime they are to be collected and packaged in proper containers. The investigator that has found the item of evidence must make sure to collect, label and package the item properly.

The chain of custody is defined as the witnessed, written record of all individuals who have maintained con-

(Continued on page 9)

(Continued from page 8)

trol over the evidence since its acquisition by a police agency. The chain of custody begins with the investigator on the scene. It begins when an item of evidence has been collected at the scene. The investigator begins the control of the chain of custody by marking and labeling each item of evidence. By enforcing the strict documentation of each item in the chain of custody the investigator ensures the credibility of the evidence that is collected. The chain of custody provides the court with the credibility that the items of evidence that have been collected at the scene are the exact items that are being presented during the trial in a court of law. The chain of custody documents should include the names of all that handled the evidence, the date and time in which each person handled the evidence. All pertinent evidence collected at the crime scene is submitted to the forensic science laboratory for analysis.^{1,3,7}

CASE EXAMPLE: Importance of Crime Scene

JonBenet Ramsey Case

December 26, 1996 a call was received by the Boulder, Colorado Police Department from a woman screaming that her child has been kidnapped from her home in the middle of the night. The call was made by Patsy Ramsey from her tudor home in Colorado. Officers were dispatched to the scene just before 6:00 AM in the morning. Upon arriving at the home they were confronted by both John and Patsy Ramsey stating that their daughter, JonBenet, had been taken from the home and all that was left behind was a ransom note demanding money for her return.

Officer Rick French conducted a brief search of the house after he read the note, but came up with nothing. In the basement he found a door and neglected to open it at the time of the initial search. The crime scene was never sealed off and throughout the search many individuals were allowed to enter and exit the scene without much question. Many mistakes were made throughout the search of the scene.

The first mistake was that the scene was never sealed off and John Ramsey was allowed to leave the home to go to his office to check his mail after the police arrived. The first step that was to be taken was securing the scene and not allowing anyone to leave police custody. The only area of the home that was preserved was JonBenet's bedroom. The rest of the house was filled with people. The home was filled with friends, relatives, officers, and neighbors throughout the search for JonBenet. The areas where the guest had been were cleaned after they had left.

This contaminated and destroyed any crucial evidence that may have been at the scene.

After police and forensics teams left the home, John Ramsey and a family friend were told by an officer still in the home to conduct a top to bottom search of the home. Family and friends are never to search the home in which a crime has occurred. Crime scene searches are to be conducted by police personnel and investigators to ensure that evidence is not lost or destroyed. When they arrived in the basement John Ramsey opened the wooden door that was in the back of the basement and found the body of JonBenet lying lifeless on the floor with duct tape over her mouth. He picked her up and carried her to the living room where he placed her in front of the Christmas tree. The body should have never been moved from where it was found because of the evidence that may have been on or around it. The search should have never been conducted by an unauthorized individual as well. Any evidence that may have been at the scene was destroyed or contaminated.

John Benet had been murdered. She was found with a garrote tied tightly around her neck. She was wrapped in a white blanket and had been wearing a white long sleeve shirt with a white sweatshirt over it and white underwear with white pajama pants. She was found with a gold ring on her right middle finger, a necklace with a small gold cross around her neck, and a red heart was drawn on her left palm. A two and a half page ransom note was then left demanding 118,000 dollars, which was the total of John Ramsey's work bonus for that year. There was no forced entry or sign of struggle at the crime scene.

The number of mistakes that were made had caused the investigation to be at a stand still. No one can be charged with the murder because the evidence is entirely too weak or has already been destroyed. To this day the killers of JonBenet Ramsey have never been found nor has the case been closed. This case may have been solved if the investigation was done in the correct manner and proper steps were taken.¹⁰

CONCLUSION

Overall, proper crime scene investigation is a very crucial aspect of an investigator's job when investigating the scene in which a crime has occurred. Many different steps need to be taken throughout the process in order to secure the scene and collect evidence minimizing the risk of destroying or contaminating evidence that is collected. If all the investigation steps are taken carefully, the inves-

(Continued on page 10)

tigator will can use this information to solve the crime; otherwise, the evidence may not be accepted in support of the case investigation. Current advancements in technology enable investigators to reach quicker conclusions as to why and how certain aspects of the crime may have occurred and who may have done it. Proper crime scene investigation is definitely a very crucial aspect to the criminal justice system and has come a long way from what it used to be when it first began.

REFERENCES

1. Baldwin, Hayden B., Crime Scene Checklist. Illinois State Police, <http://www.feinc.net/cklst.html>
2. Baldwin, Hayden B., Crime Scene Investigator Job Description, <http://www.feinc.net/csi-desc.html>
3. Byrd, Mike, Proper Tagging and Labeling of Evidence for Later Identification. Miami-Dade Police Department, Crime Scene Investigation, <http://www.crime-scene-investigator.net/tagging.html>
4. Crime Scene Search. Handbook of Forensic Services, 1999 <http://www.fbi.gov/hg/handbook/scenc1.html#CrimeScenSearch>, Record, and Physical Evidence Collection
5. Criminal Investigation, Basic Perspectives, Prentice-Hall, Inc., 1970, pages 48-49
6. Criminal Investigation, Second Edition, West Publishing Company, 1987, pages 26-31, 490-493
7. Criminal Investigation, Sixth Edition, The McGraw-Hill Companies, 2000, pages 1-11, 44-45, 55-58, 61-62, 155-157
8. Forensic Evidence, Science and the Criminal Law, CRC Press, (2001), pages 184-185.
9. Forensic Science Communication, Trace Evidence Recovery Guidelines, October 1999, Volume 1, Number 3, (SWGMAT), <http://www.fbi.gov/hg/lab/fsc/backissu/oct1999/trace.html>
10. JonBenet Ramsey Case:
http://classes.colgate.edu/rbowman.core145/jonbenet_newsweek.htm
<http://www.crimelibrary.com/ramsey/ramseymain.html>
11. Organization and Procedures for Search Operations, Crime Scene Response Guidelines, Part III, <http://www.crime-scene-investigator.net/respon3.html>
12. Ruslander, H.W. "Rus" Searching and Examining a Major Case CrimScene, S.C.S.A., Palm Beach Co. S.O., West Palm Beach, <http://www.crime-scene-investigator.net/searchingandexamining.html>
13. Shiro, George, Collecting and Preserving Evidence, <http://www.crime-scene-investigator.net/evidenc3.html>
14. Shiro, George, Protecting the Crime Scene, <http://www.crime-scene-investigator.net/evidenc1.html>
15. The Metropolitan Police Service (1995). <http://www.net.police.uk/histor/definiton.htm>