

# Lecture 1 - Introduction to Crime Scene Investigation

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- A forensic investigation seeks to reconstruct a crime scene and any events that occurred there
- Physical evidence is much more important and reliable than eyewitness evidence - eyewitness evidence can be wrong, deliberately false, misleading etc.
- Crime Scene examples: Car accidents, fire/explosion, mass catastrophe (plane crash, bombing etc.)
- Errors committed during the interrogation and other aspects of the preliminary investigation can usually be corrected, but **errors committed in the protection and examination of the crime scene can never be rectified**
- The aim of the investigation is to make observations at the scene in a systematic and scientific manner and to be as thorough as possible, in the knowledge that there will not be a second chance to make those observations

Common elements of all crime scene investigations are:

- To reconstruct what happened (sequence of events, modus operandi)
- To recover evidence that links perpetrators or victims to the scene

- The overall strategy is to move from the general to the particular - Analogous to laboratory investigation of forensic evidence
- The first investigations undertaken at a scene will always be those that provide information without touching or disturbing the evidence
- Only at the end of the observational stage is evidence touched or moved
- This is analogous to a laboratory examination moving from non-destructive to destructive testing
- **Locard Exchange Principle - every contact leaves a trace**
- This exchange can be a material deposit, such as fingerprints, fibres, paint, glass, DNA
- Or it may be the result of an action, such as moulded traces (tool marks, footwear impressions, tyre marks)
- **Identification evidence** is fingerprints and DNA, and possibly footwear impressions and ballistics. **This places an individual at the crime scene**
- **Class evidence** is tool marks, possibly footwear impressions, glass, fibres, paint etc. **This places an individual at the crime scene with some degree of probability**
- Identification is of greater value to an investigation than Class evidence, and is given priority in the collecting stage
- For any type of linkage evidence transfer there are two possibilities:
- **Simple transfer** - the trace found on A comes from B
- **Double transfer** - the trace found on A comes from B, *and* the trace found on B comes from A
- Double transfer increases the probability ratio of the evidence enormously

What is the crime scene investigator required to do at a crime scene?

## 1. Intervene at the Scene

- The crime scene is the place from which most physical evidence will be

obtained

- The basic rule is to anticipate the worst and take maximum rather than minimum precautions
- The crime scene examiner is usually not the first on the scene (paramedics, civilians etc.), so the examiner needs to preserve all evidence on arrival at the scene, and inform the detectives, firefighters, etc. of the requirements for crime scene investigation
- The only people you can't ask to leave the scene are any medical officers who are treating any wounded, you cannot get in their way or prevent any first aid administration

Intervention sequence:

1. Aid to injured persons
2. Protection of the scene
3. Isolation and interview of witnesses
4. Preservation of evidence
5. Cadaver management

- These need to be done before the main crime scene processing can begin
- **Aid to injured persons** - If an injured person is on the scene, first aid must be administered immediately even though valuable evidence may be unavoidably lost or destroyed - saving lives takes precedence over all other considerations
- If first aid to the injured is not immediately essential, the investigator should note the victims position - how they are lying or sitting, and the position of the hands, arms and legs, the condition of clothes etc.
- It is also important to note whether the victim has anything on them such as hairs, fibres etc. If necessary these items must be immediately recovered
- The investigator should instruct the medical personnel on how to enter the scene with minimal disturbance, observe the actions of the personnel (what they move, where they walked etc.), and arrange for custody of the clothing of the victim
- Crime scenes can often present hazards, e.g. weapons, drugs, unexploded bombs etc. - it is the investigators responsibility to protect themselves and others at the scene

## 2. Protect the Scene/Preserve the Evidence

- **Protection of the scene - Access control** is the most important step in protecting the Scene from everyone not directly involved with the investigation, including: other officers, journalists, curiosity seekers, family members etc.
- Any of these people present at the scene must be identified and the reason for their presence must be noted, then they must be removed from the scene
- Once intruders are removed, the perimeter must be secured (e.g. with crime scene tape), and an officer must still take an active role in keeping people away
- Outdoor crime scene - an ample area should be roped off to include the path taken by the criminal to and from the scene
- It is important that barricades be sufficiently extensive from the start of the investigation, as there are no second chances with crime scenes
- **Isolation and interview of witnesses**
- The following people need to be interviewed, at the very minimum:

- Victims who are capable of being interviewed
- Other civilians present at the time of the incident
- Other civilians who came to assist after the incident
- Professionals who attended (fire, ambulance, police)
- **Preservation of Evidence** - there may be *transient* evidence at the scene, evidence that is progressively destroyed as time passes
- In outdoor scenes, it is vital that evidence be protected from the elements if it cannot be collected immediately - a tent or canopy may be required
- In general, there will be a pressure on the investigator to release an outdoor crime scene for public access, e.g. a main road can only be kept closed for a limited time
- The investigator must be satisfied that crime scene processing is complete before a scene is reopened to the public
- **Cadaver Management** - a cadaver should not be touched and should be protected as other evidence
- It should not be covered with a blanket, as this could introduce foreign materials - in the event of poor weather at outdoor scenes, the body should be covered with a canopy/tent
- The exact position of the corpse must be noted
- The hands should be protected with paper bags, due to the high probability of contact between victim and suspect
- If a rope has been used, it must not be cut and the knot must not be untied
- Clothing or jewellery should not be removed at the scene

### 3. Document the Scene

- **Note taking** - this allows any observations to be committed to writing
- Notes should be in chronological order, highly detailed, complete and thorough, clear and legible, and as specific and accurate as possible
- Notes should include the following:
  - The date and time the crime was first reported to the police
  - The time of the first arrival on the scene by the investigator
  - The time of each step carried out during the crime scene processing
  - The time the crime scene investigation was concluded
  - The location and a brief description of the area
  - The weather and light conditions when performing the crime scene investigation
  - The location of each piece of evidence found with relevant information (name of the officer who recovered it, result of fingerprint search, etc.)
  - The location of each picture taken during the investigation
  - A brief description of the crime or event that led to the investigation
  - The name of the person who ordered the crime scene investigation
  - The names of all officers, witnesses, investigators, and special personnel at the crime scene
  - The names of the persons who conducted the crime scene search, and who took the photographs, fingerprints, sketches etc.
  - A description of the primary crime scene i.e. location and position of the body, accompanying detailed description (e.g. carpeted floor, wallpaper on the walls, gyprock roof etc.)
  - All modifications which occurred (e.g. moved items, shut doors etc.)
- **Crime Scene Photography** - photographs aid in refreshing memories of witnesses and investigators, they show the relationship of items of

evidence at the crime scene, and help convey the crime scene and the circumstances of the crime to the jury

- Photos should be taken moving from the general to the particular
- 1. Location photographs, i.e. surrounding areas in each direction, other areas of interest in proximity to the primary scene etc.
- 2. Witness photographs, i.e. overall photos of the crime scene - they depict the scene as it would be observed by a witness. Long-range and intermediate-range photographs should be taken
- 3. Evidence photographs - photographs of every item of evidence should be made prior to removing/changing the item in any way e.g. bloodstains, shoe prints, weapons etc. One shot without a scale and one shot with a scale should be taken
- Film photography is used over digital photography, as film is higher quality, and digital images can be altered *undetectably*
- To use digital photos, investigators must adhere to the *Guidelines for Digital Photography*, otherwise digital photos are not admissible in court
  
- **Crime Scene Sketching** - sketches and photographs complement each other, sketches clarify the appearance of the crime scene and make the scene easier to comprehend e.g. room layout sketches
- They help persons who were not present at the scene (e.g. jury) to better understand what the scene looked like
- The sketch may be drawn purposely to leave out extraneous and confusing details that would be recorded in a photograph
- Computer software (Computer-Aided Design CAD) can be used to render sketches 3D, and have been used to depict trajectories in shooting scenes
  
- **Crime Scene Videos** - video has the advantage of depicting the scene more graphically
- The filming should begin outside an indoor crime scene, or with an overall shoot of an outdoor location
- The investigator should narrate the videotape and the narration should include the name of the speaker, time, location, case number, and other pertinent identifying information
- The investigator should be selective, zooming in on critical areas and pieces of evidence after giving a wide picture of the crime scene as a whole
- The crime scene video constitutes evidence, and must be handled the same as other evidence relating to the crime
- The original must not be altered, and any enhancements to a copy should be documented in enough detail to allow an expert to repeat the process
  
- 4. **Process the Scene**
  - **Searching the Crime Scene** - the basic rule of searching is to be systematic
  - Evidence is not processed until the entire scene has been searched, excepting transient evidence
  - The scope of the search is often determined by a theory agreed on by the investigators, but if new facts present themselves the investigators must be willing to reassess and modify their theory
  - The best place for obtaining physical evidence is near where the critical act occurred, but other places must not be overlooked, e.g. the point of forced entry, the route of escape, the suspect, the suspect's residence
  - Evidence must be secured and collected without contamination or loss

- The basic tools taken to a crime scene are:
  - Lighting systems - hand torch, Polilight (needs a power outlet - laid on the floor to reveal previously unseen fibres etc. using shadows), Crimelite (handheld) - these specialised lights can enhance contrast between evidence and the background
  - Enhancement systems
  - Collection tools
  - Packaging - depends on size and fragility of evidence
  - Magnification systems
  - Metal detectors (especially when searching long grass)
  - Luminescent sprays for biological fluids, fingerprints, explosive residues
  - Markers (numbers, letters)
  - Vapour detectors (especially in fire scenes)
- Gloves must always be worn during the collection of evidence - gloves must be changed before handling a different piece of evidence
- Tweezers are incredibly important, as they allow small items to be handled without destruction
- A hypothesis and a systematic search will guide the decision on what evidence to collect
- Avoid contact between collected evidence and the crime scene - do not store collected evidence nearby while working on the scene
- The more fragile a piece of evidence, the higher the priority to collect it first
- Priority order:
  - Fingerprints
  - Shoeprints
  - Biological
  - Flammable liquids and fire debris (fire scene)
  - Other trace evidence (fibres, paint, glass - in that order)
  - Macro items (furniture, weapons etc.)
- **Chain of Custody** - a chain of custody is maintained to prove that the evidence collected at the crime scene is the same evidence being presented in court
- Every time the evidence changes hands, it must be recorded in specific detail
- Each person who subsequently handles the package signs a form and adds details about the actions taken