

X-Exam for Criminalists at Crime Scene:
(From Fisher, Techniques of Crime Scene Investigation)

Role of Criminalists:

Crime scene holds clues about the criminal and what happened.

Clues often are hidden or easily overlooked by the untrained eye.

The forensic scientist is like a detective whose job is to apply science and technology to the solution of criminal acts.

The forensic scientist should not be restricted as to what items he examines or tests he performs, other than by available time and resources.

(See American Society of Crime Lab Directors, Guidelines of Management Practices: The guiding principle should be that the end does not justify the means; the means must always be in keeping with the law and with good scientific practice)

Teamwork between law enforcement and forensic scientists is essential for the full investigation of criminal acts.

Laboratory work to identify and compare physical evidence is routinely performed by forensic scientists.

Another role of the forensic scientist is participating in a team effort to reconstruct events that have occurred prior, during and after the commission of a crime.

Reconstruction requires a collaboration of experienced law enforcement personnel, medical examiner and Criminalists.

All of the professionals contribute a unique perspective to develop the crime-scene reconstruction.

Reconstruction requires an evaluation of the physical evidence, as well as the statements of persons involved in the incident.

The physical evidence at a crime scene plays a crucial role in reconstructing the events. Although the evidence alone does not describe everything that happened, it can support or contradict accounts given by witnesses and/or suspects.

If the team effort at reconstruction is successful, it can play a vital role in aiding a jury to arrive at an appropriate verdict.

Importance of Physical Evidence:

Prove that a crime has been committed or establish key elements of a crime

Link a suspect with the victim or with the crime scene

Establish the identity of persons associated with a crime

Exonerate the innocent.

Corroborate the victim's or witness' testimony

A suspect confronted with physical evidence may make admissions or even confess.

Physical evidence is more reliable than eyewitnesses to crimes

Physical evidence is expected by juries (it is available, reliable, probative--public should demand its use)

The absence of physical evidence (negative evidence) may provide useful information, when the presence of evidence (positive evidence) would be expected.

Terminology:

Individualized--means that an item is unique, e.g., fingerprints, fired bullets, bloodstains from single source

Identification--means that an item shares a common source; the item can be classified or placed into a group with all other items have the same properties.

Control samples--needed for comparative laboratory analyses. ["Standards" from all persons suspected of being source of the Questioned Sample; or blank samples, i.e., an unstained area next to a questioned stained area]

Contamination--is a concern for proper preservation of evidence. Items of evidence should be packaged separately in individual containers. Each piece of evidence should be completely segregated from other evidence.

Improper or too much handling may obliterate fingerprints; dislodge minute trace evidence such as hair, fibers, and debris; break brittle evidence; or contaminate body fluid evidence.

Trace Evidence--a generic term for microscopic or small items of physical evidence, such as hairs, fibers, glass fragments. Such evidence may be easily overlooked in crime scene investigations unless proper care is exercised in the search.

Class Characteristics--used to identify the item

Individual Characteristics--used to discriminate the item from other items with the same class characteristics

Crime Scene Processing:

The objectives of crime scene processing are to obtain evidence which will assist law enforcement:

- 1) to reconstruct the incident (i.e., what happened and who was involved)
- 2) to ascertain the sequence of events
- 3) to determine the mode of operation (?modus operandi)
- 4) to disclose the motive
- 5) to find out all the criminal may have done

As the number of different items of physical evidence linking an individual to a crime increases, the probability of involvement increases.

Physical evidence at the crime scene can be the key to solving the crime. Officers must therefore prevent destruction, contamination or degradation of potential evidence.

It is impossible to enter the location without changing it in some way, either by taking something from it or leaving something behind.

Persons entering crime scene must take precautions against destroying or altering anything. That includes adding any items to the crime scene which could mislead the investigation.

The importance of detailed, meticulous note taking cannot be over-emphasized for documenting the changing condition of the crime scene.

The crime scene investigator needs to know all that responding officers have learned or observed about the crime scene, as well as all actions taken at the scene.

Must know what actions took place at scene from time crime was reported until the investigator's arrival, to determine the extent to which the scene has been altered, e.g., whether objects have been disturbed (picked up, turned over) or moved.

Unfortunately, there are countless instances of police on sightseeing tours through the crime scene. Of introducing "evidence" into crime scene, e.g., cigarettes, food stuffs. Or Trampling through outdoor crime scene.

The investigator must maintain healthy skepticism. Things may not be what they seem.

It is better to be too thorough, because the alternative is that a critical piece of evidence could be overlooked.

Criminals always leave trace evidence behind or take away minute material from the scene.

Must evaluate the scene and situation thoroughly prior to beginning to process.

First obtain the basic facts from the officers already present. Should be as well briefed as possible about the case before undertaking examination of the scene.

Then make a complete and systematic survey of the actual scene as well as the immediate surroundings.

Attempt a mental reconstruction of the case, i.e., what happened and why.

This is essential to planning the investigation intelligently and getting the most out of the scene.

If blood is at the scene, some attempt should always be made to estimate the amount. If blood has flowed out onto an absorbing layer, the depth of penetration should be determined.

The examination of a crime scene located outdoors must be planned quickly and carried out as soon as possible--adverse weather can destroy evidence.

Also, bloodstains on grass change color rapidly so that they are difficult to detect. It is important to document bloodstain patterns because experts may be able to use this information to reconstruct the crime.

Unless absolutely necessary, do not examine an outdoor crime scene until daylight.

This rule should be followed even where suitable illumination is available.

If it must be done with artificial light, keep scene intact for final search in daylight.

Certain evidence can be missed in artificial light, but show easily in daylight.

Most clues at outdoor scenes consist of minor changes in the ground cover, such as matted grass, torn moss, broken twigs, indistinct footprints, and the like.

Such tracks may be visible from several yards away in daylight, but are almost impossible to detect at night even with powerful illumination.

Since it is difficult to survey the scene and to interpret correctly even gross evidence, it follows that it is even more difficult to find evidence as small as bloodstains, fragments of cloth, fibers, and so on.

Such evidence may be overlooked or destroyed--trampled under foot--if a thorough examination is attempted in darkness.

Whenever the examination must be done immediately, it is better to refrain from seizing the evidence and instead cover it with tarpaulins, boxes, or similar protective devices and then wait for daylight for the completion of the examination.

Leave body overnight if only purpose for moving is to place it in storage for autopsy the next day.

Before body is moved, marks or stakes should be placed at certain places around the body, e.g., top of head, ears, elbows, hands, crotch, knees, heels, points of toes, and these points measured in relation to 2 fixed points at scene.

This will allow the original position to be reconstructed on site, for additional evidence processing after the body is moved.

A critical piece of evidence may be located under the body, perhaps a pool of blood or bullets or bullet fragments.

The relationship between the location of injuries on the victim's body (gunshot wounds) and bloodstains on the ground should also be established and recorded.

In cases involving shootings, it is necessary to search for weapons, cartridge cases and bullets.

When cartridge cases are found, their position should be noted in the report, on the sketch, and on the envelope in which they are placed, measured from 2 fixed points and any other significant points of reference, such as reference points of victim's body.

Throughout the examination of the scene, the investigator should attempt to think through and reconstruct the actions of the criminal.

Note taking at the crime scene is essential.

Constant interruptions of field work for note taking are the rule.

Good, contemporaneous written notes are invaluable later in the investigation and especially at trial.

Significance of various items at scene:

Blood can be used to determine the sequence of events in a crime and tie a suspect to a crime scene.

When blood stains are present, an attempt should be made to reconstruct the events that caused the stains. [i.e., crime reconstruction through the use of blood stain pattern interpretation is a recognized technique, but it must be used only by those who have the necessary amount of training.]

This includes determining whose blood is present in the various stains.

Evidence from the **Body** may be discovered by a careful examination. Hair is sometimes found on the victim's body in rape cases. Bloodstains on the body are not uncommon in homicide cases.

Clothing is an excellent source of trace evidence. Small items, such as fibers and hairs, may cling to the clothing by static electricity or become caught in the fabric.

Hair should always be searched for, as well as other trace evidence. Hair can exclude a suspect; however, it cannot positively prove that a sample came from one and only one person.

Body fluid secretions or blood may also be found on clothing at a crime scene; these fluids can be analyzed to determine the blood type or DNA profile of the donor.

Clothing may also be a source of blood stain pattern evidence, which can be used to reconstruct the crime.

Care should be taken when placing the garments into paper bags. The clothes should not be shaken so as not to loosen or dislodge trace evidence.

If the clothes are wet or bloodstained, they should first be allowed to air dry prior to packaging.

Fibers and fragments of cloth may be valuable evidence in a wide variety of cases.

Fragments of cloth may yield class as well as individual characteristics. A portion of fabric may be physically fitted into another piece of fabric, thereby proving a common source.

The location of fragments or fiber clumps should be noted on crime scene diagram and photographed.

Shoes are valuable items of evidence. There may be dust, soil, debris, vegetation, bloodstains, and the like on them.

In addition, they may yield useful shoe impression evidence.

Shoes should be individually packaged to avoid cross-contamination. Clumps of soil may assist in linking the shoe to a particular location or route of travel.

It may be possible to remove successive layers of the soil sample a bit at a time and reconstruct the activities of the wearer based on different types of soil present.

This possibility would be greatly lessened in the clumps of soil become dislodged and pulverized in transit to the lab.

Cigarette butts may be a useful source of physical evidence.

In some cases latent fingerprints have been developed from cigarette butts.

It is also possible to find saliva on the butt for DNA typing.

Paper, such as newspaper, wrapping papers and the like are sometimes found at crime scenes. Besides trace evidence, handwriting and latent fingerprints may be present.